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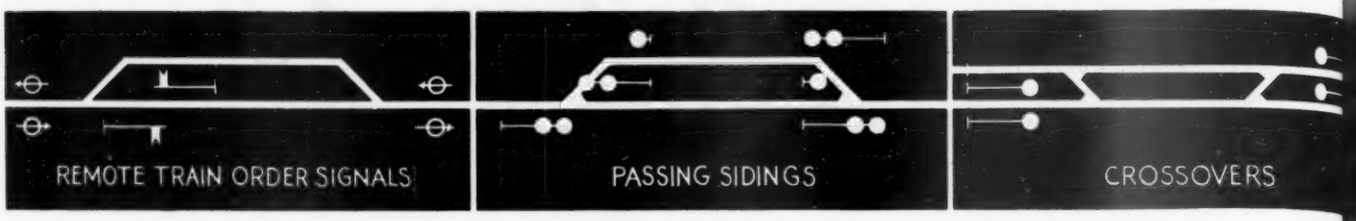
REMOTE TRAIN ORDER SIGNALS
PASSING SIDINGS
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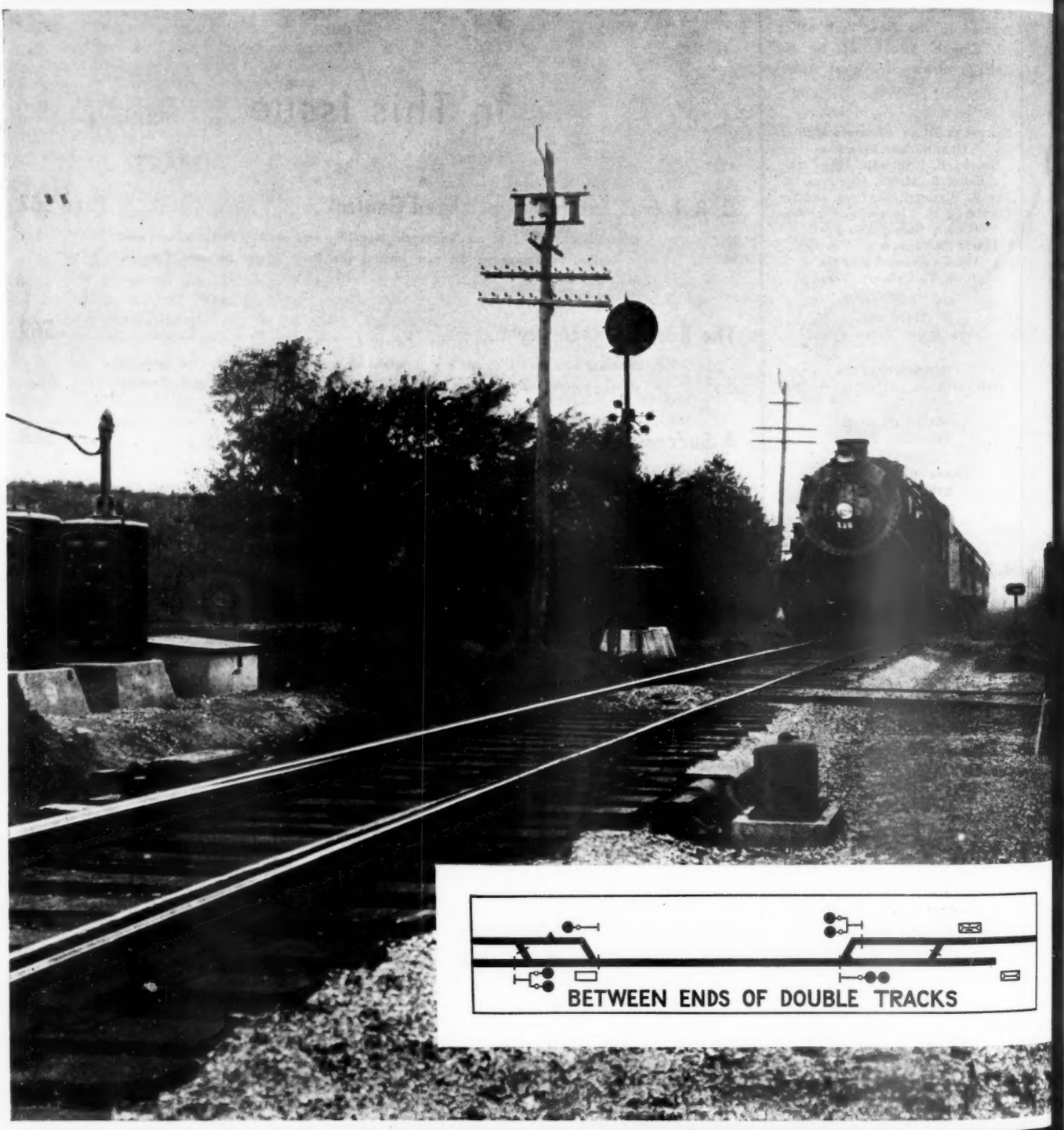
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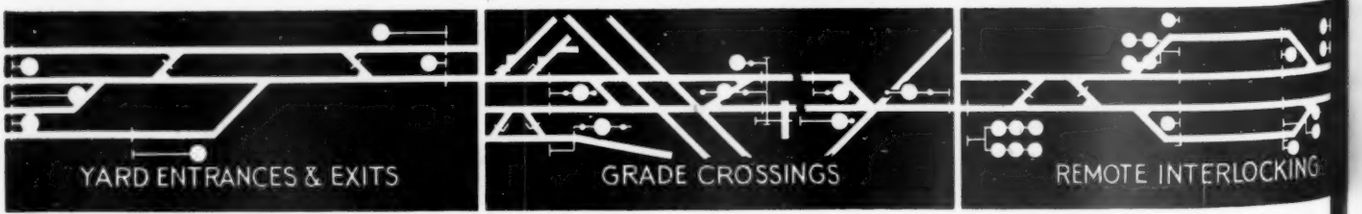
YARD ENTRANCES & EXITS
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REMOTE INTERLOCKING

The Need for a Revolution

We read or hear statements frequently that unless economic conditions soon improve in this country we will have a revolution. Fortunately, conditions are beginning to improve. The best single measure of the total volume of production and commerce is the amount of freight shipped by railroad. Railway freight business reached relatively the lowest level during this depression in June, 1932. The normal seasonal increase between June and October in years of prosperity has been about 12½ per cent. The increase in carloadings between June and October, 1930, was less than 4 per cent, and in 1931 was 3 per cent, while between June, 1932, and the first two weeks in October it was almost 27 per cent. This increase in freight movement is so significant because the amount of freight shipped indicates not only how much business the railways are doing, but the total amount of business that all industrial and commercial concerns are doing, and because a more than normal seasonal increase in freight business in the fall almost invariably has been the forerunner of expanding general business in the succeeding year.

It would not be difficult, however, to arrest the improvement in business that is occurring, and despite it, there are abundant evidences that we need and must have a revolution, or several revolutions, in the United States if real and lasting prosperity is to be restored. We must have a revolution in public sentiment. We must have a revolution in government. We must have a revolution in business. Contrary, however, to the views of most of those who predict a revolution, the revolutions needed are toward conservatism, not toward radicalism; toward less and better government, not toward more government; toward better managed business, rather than merely toward bigger business units.

We have been passing during the last decade through a "new era", which seemed to promise well for a few years, but has now included three of the most disastrous years in all history.

The statement often made that these years of disaster have been the inevitable aftermath of the great war is not true. Whatever may have been the inevitable aftermath of the war, this long and profound depression has also been the inevitable aftermath of prolonged and wholesale violations of sound principles of government and economics in which every class of the people has participated. The total expenditures of our federal, state and local governments in 1923 were $10,300,000,000, while in 1932 they are estimated at $15,000,000,000. Obviously, the war is not responsible for an increase of 50 per cent, or $5,000,000,000, in annual government expenditures which occurred during a period which began five years after the war ended. This increase of government expenditures has been due to the recklessness of politicians, urged on until recently by business men as well as the general public, and is only the most conclusive of many illustrations that could be cited of the folly of using the effects of the war as an alibi for other causes of present conditions.

We are now in the midst of the most important national political contest that has occurred for at least 36 years. The *Railway Age* is not a political paper, and therefore expresses no preference for the success of either party. It must be recognized, however, that the results of the election may have an important effect upon the trend of business, because there is involved the question as to whether there shall be elected to federal and state executive and legislative offices men who are in favor of maintaining and increasing the socialistic government policies which have contributed so largely toward creating the present conditions, or men who are in favor of reviving the policies which formerly contributed toward economic progress and the increase of the incomes of all classes of the people.

Effects of Revolution in Government

Certain changes which have been made in government during the last quarter century have rendered it much harder for the people to nominate and elect fit men to public office and to hold those elected to a strict accountability for the government policies adopted and their results. The founders of the nation created a representative system of government which has been largely destroyed, and its proper operation made extremely difficult, by the adoption of the primary system of direct nomination and election of most candidates. To these changes in government have been largely due the reckless increases in government expenditures and the adoption of many of the socialis-

tic policies a continuance of which would finally make it impossible to conduct any private business with success.

However, until there can be accomplished the revolution needed to restore representative government, the people must make, under the present system, the best choice they can between candidates for public office. If they are to choose the right candidates they must do so largely regardless of party, because there are constructive and destructive politicians in both parties. There is one standard which, under present conditions, can be safely applied. If a candidate can show that he is sincerely in favor of drastically reducing government expenditures, local, state and federal, and in favor of reducing government interference in business, whether through restrictive regulation or subsidies, he is a safe man to vote for. If a candidate's record and public utterances show that he is not sincerely in favor of reducing government expenditures and taxation, or of reducing government interference with business and withdrawing subsidies from favored industries and classes, then he is not a safe man to vote for.

Employment by Railways and Affiliated Industries

Among the industries that have been brought nearest to the verge of ruin by the policies followed by all our governments since the war are the railroad industry and the railway equipment and supply industry. In consequence, the employees of these industries and their families are among the worst sufferers during this depression. In August, 1926, in which year the gross earnings of the railways were the largest in their history, they employed 1,793,067 persons. In August, 1929, in which year their gross earnings were less than in either 1923 or 1926, they employed 1,681,252 persons. In August, 1932, the number of their employees was only 996,319, the smallest since 1899, and a decline of 796,748 since 1926 and of 684,933 since 1929. This reduction of employment by the railroads has been due to the depression and to the competition of unregulated and subsidized carriers by water and highway. Furthermore, there has occurred a reduction in the purchases of the railways from manufacturers and coal mine operators which has caused a relatively even larger reduction of employment by these other industries.

The relatively great decline in employment on the railways and in industries dependent upon them for a market has been due to the fact that the total earnings of the railways were actually declining before the depression began, having been less in 1929 than in either 1923 or 1926, and to the terrific further decline in railway earnings that has occurred during the depression. Neither the railroad nor any other industry can pay those that it employs or from whom it makes purchases excepting directly or indirectly from its earnings, and if its earnings decline the total it will spend in giving employment and making purchases will inevitably decline, regardless of any efforts that may be made to prevent it. Labor leaders are seeking a six-hour day to increase railway employment. Railway employment has declined because of the decline in railway earnings, and it will not be increased excepting by some change that enables the railways to pay more men out of their earnings.

For Whom Should We Vote?

The kind of men for whom employees of the railways, of railway equipment and supply companies and of other industries dependent upon the railroads for a market should vote seems, therefore, quite obvious. They should vote only for men who will favor policies that will tend to increase railway traffic and earnings. By this token, they should vote against every "radical", because every radical in public life has favored and still favors every government policy that tends to restrict and reduce railway earnings. Employees of railways and of industrial companies dependent upon them for a market should especially ascertain the attitude of their candidates for Congress and for state legislatures regarding the subsidization of carriers by water and highway and the application of comparable regulation to the railways and other carriers. One of the principal revolutions needed is a revolution in government policies relative to transportation, and unless the millions of persons who are directly and indirectly dependent on the earning capacity of the railways vote for the election of candidates who favor fair and liberal treatment of the railways they will not vote for the retention or recovery of their jobs.

Whether we are going to have another revolution or not, we have been having one for some years. We have been having a socialistic revolution which has been enormously increasing government expenditures and taxation, and hurrying many industries and their employees, and especially the railroads and affiliated industries and their employees, toward destruction. Let us start a new revolution which by reestablishing representative, efficient and economical government, reducing government interference with business, abolishing governmental favoritism between industries and classes, and giving everybody an equal chance to succeed or fail, will help to restore prosperity.

Don't Break the Chain

A recent suggestion from the secretary and traffic manager of the American Association of Nurserymen to its members, urging each of them to write to the Interstate Commerce Commission in opposition to increases in rates soon to become effective, is of interest as typifying one way in which work is placed upon the Commission unnecessarily. The flooding of the mails with such letters is of no help in solving rate controversies and belongs in the same category with the "chain letter" outlawed by the Government.

The instructions sent to members by the secretary read as follows:

For your information, desire to advise that our request for suspension of Consolidated Classification No. 7, which goes into effect September 20 and contains the very radical increases on nursery stock, was mailed to the Interstate Commerce Commission on September 3. Now we want you to follow up our request for suspension and write the Commission, direct and on your letterhead, a letter something like the following:

In Consolidated Freight Classification No. 7 under heading of, Nursery Stock, drastic increases in ratings are published to become effective September 20. Should these schedules be permitted to become effective, the present freight rates on our shipments will be increased up to 150 per cent. If the nursery stock industry is to survive it is absolutely necessary that the Interstate Commerce Commission suspend the schedules sought to be made effective. Upon a hearing on the question of the proposed increases we can make a sufficient showing to justify the cancellation of the proposed schedules. This matter will be especially brought to your attention by the secretary of the American Association of Nurserymen and their attorney.

You can change the above letter and use your own words so that all of the letters from the members will not appear too much like a form letter and you can also add to the sample letter we have given you anything that you think will help with the case.

The Dotsero Cut-off

The Dotsero cut-off, the immediate construction of which has been made possible by a loan to the Denver & Rio Grande Western by the Reconstruction Finance Corporation, is one of a limited number of railway projects that have received the impetus of federal assistance. It is, therefore, of interest to consider it from the standpoint of its effectiveness as an agency for the improvement of economic conditions.

This 40-mile line, which will require 4,500,000 cu. yd. of grading, will provide direct employment for 1,000 to 1,500 men for a period of 18 months or more, it being estimated that $2,500,000 of the total loan of $3,850,000 will be spent for payrolls on the site. It will also involve the use of a large amount of construction equipment and require the purchase of 125,000 crossties in addition to a large tonnage of steel for rails, frogs, switches, track fastenings and bridges, as well as cement and aggregates for concrete masonry. Clearly, the expenditures entailed will have a favorable influence on business in the territory affected.

There should also be no question as to the "self liquidating" character of the loan, because it is not often that the construction of a 40-mile line will result in a 172-mile saving in route distance. Furthermore, the completion of the connection between Orestod on the Denver & Salt Lake and Dotsero on the Denver & Rio Grande Western, will bring fruition of a plan, on which many millions have already been spent in efforts to develop a short route from Denver to Salt Lake City. For, in place of Moffat's ill-advised plan for an independent line to Salt Lake City, the Moffat tunnel line will now be incorporated in a route embracing a large part of the D. & R. G. W., and will thus add greatly to the strategic position of the latter as a bridge line for transcontinental traffic.

A Chance to Save in Grade Separation

The cost of urban grade separations increases with the number of street crossings per mile of railway line. It should be equally clear that the most effective development for industrial use of property adjoining railway rights-of-way in cities is retarded by a close spacing of street crossings, either at grade or separated. What is probably not so generally appreciated is that, except when used for retail business, office buildings and a few other classifications, property on a main through-traffic street is coming to be considered at a disadvantage compared with frontage on side streets. Boulevard lots no longer hold first place as high grade residence sites. Likewise, the wholesale dealer and the manufacturer want the advantages of ready access to a main thoroughfare rather than the disadvantages attending frontage directly on it.

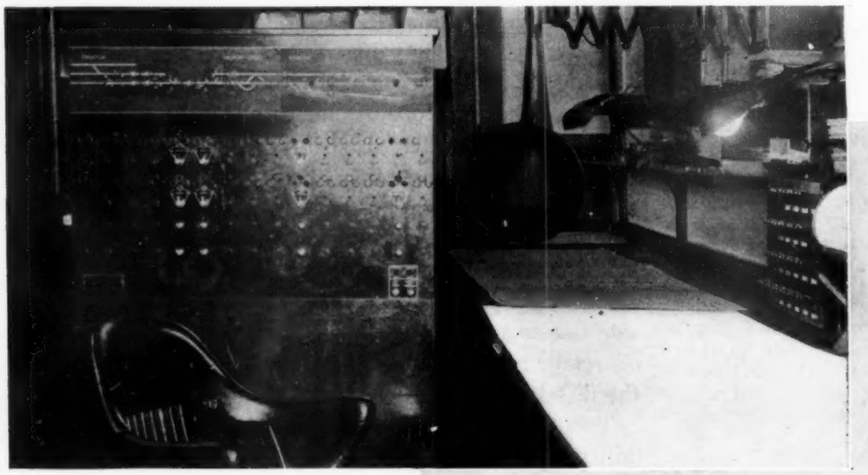
This relationship of street frontage values for certain uses has been brought about by a change in the character of street traffic, which has forced a concentration of traffic on a limited number of specially-designated streets that have been and are being widened and otherwise improved for their highly specialized use, while the remaining streets are now functioning primarily as a utility for the frontage owners.

The property holders and drivers of street vehicles are well aware of this transition, but what has not yet been generally appreciated is that with the elimination of through traffic, there is no longer any particular virtue in continuity for the local service streets. Bearing on this consideration, as pointed out in an article published on page 494 of the *Railway Age* of October 8, a grade crossing committee in Detroit has shown that the benefits to be derived by stub-ending most of the secondary streets in developing grade separation projects will in most cases far outweigh the interests of those who feel that they have a vested right in the continuity of their street, even though it embraces a railway grade crossing that is deemed of such hazard as to constitute a valid argument for the expense of grade separation.

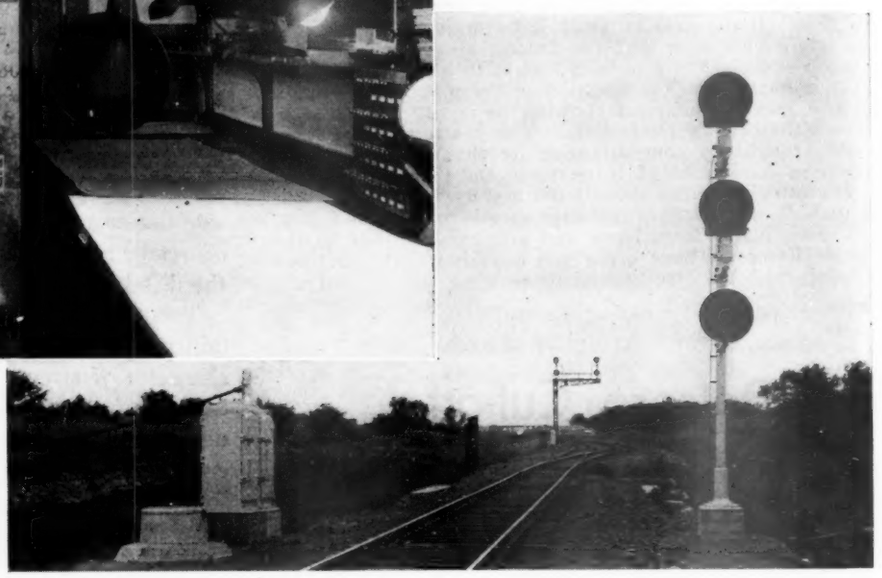
That the work of this committee is deserving of study is indicated by the fact that within the part of the city to which it has given special attention, there are 199 grade crossings which under ordinary procedure would call for separation structures; yet according to the plan developed by the committee, only 73 separations are contemplated. Similarly in another large area of this city, preliminary investigation indicates that about 113 streets out of 255 should be closed when the grades are separated. In other words, the committee's plans recommend an average of somewhere between 2 and 3 crossings per mile of railway line as compared with a weighted average of 13 per mile on grade separation work completed in past years. Furthermore, this saving will not be offset by any real disadvantages.

C. R. I. & P. Extends Centralized Control

System permits use of single track through section involving several bridges—Spring switches used to advantage



Left—The Control Machine at Trenton Is Handled by the Dispatcher

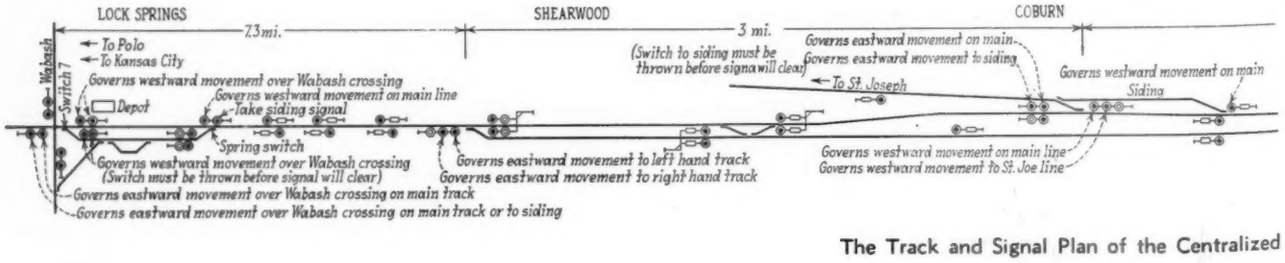


Right—End of Double Track at Shearwood

CENTRALIZED traffic control, automatic signaling, and spring switches are used to decided advantage on that section of the Chicago, Rock Island & Pacific's new line between Trenton, Mo., and Polo, 46 miles. The purpose of this new line and the details of its construction were described in an article in the *Railway Age* for November 21, 1931, and the application of centralized traffic control on the section between Polo and Birmingham, operated jointly with the Chicago, Milwaukee, St. Paul & Pacific, was explained in an article in the *Railway Age* for January 16, page 132. The following article is devoted to the signaling of the Trenton-Polo section.

General Layout

Starting from Trenton, the Rock Island constructed 2.3 miles of double track to Lake on a revised alinement and reduced the grades to a maximum of 0.5 per cent, while between Lake and Hickory Creek, 2.8 miles, the alinement of the old single-track line was revised. It is of interest to note that this latter section includes crossings of two major streams involving steel bridges more than 720 ft. long and six trestles, ranging from 100 to 200 ft. in length, over minor streams and drainage ditches. It was estimated that the bridges which would have been required if a second track had been provided in this section, would alone have cost more than $175,000. A study indicated that centralized traffic control, including power-operated switches, would assist in increasing the track capacity of this section sufficiently to meet the requirements for years to come, thus obviating the necessity for second track. The result was that such a system was installed. As finally determined, the old single-track line was left in service between Hickory Creek and Coburn, 4 miles; beyond which point the old main line extends westward toward St. Joseph. A new second main line was constructed on a new low-grade alinement from Hickory Creek to Shearwood, from which point a track connects with the St. Joseph main line at Coburn. From Shearwood a new single-track line extends for 33 miles to Polo, at which point connection is made with the new double-track line used jointly with the Milwaukee. Passing tracks, long enough to take tonnage trains,



The Track and Signal Plan of the Centralized

are located just east of Lock Springs and just east of Polo. At Lock Springs the line crosses a single-track line of the Wabash.

The signaling of this line between Trenton and Polo, therefore, involved not only automatic block but also the handling of the switches at the ends of double track at Lake, Scott and Shearwood, the junction switch at Coburn, and the passing track switches at Polo and Lock Springs, as well as the interlocking for the Wabash crossing at Lock Springs. The installation of an interlocking at Hickory Creek was considered, but this idea was discarded in favor of a centralized control system extending from Trenton to and including Shearwood, with power-operated switches at all ends of double track and principal junction switches.

The west end of the passing track at Polo is connected in an interlocking at that point, while a spring switch is used at the east end, signals being provided so that the operator can control the direction of train movements. At Lock Springs the operator operates the switch at the west end of the passing track, while a spring switch is used at the east end, signals for directing train movements being controlled by the operator. Traffic-direction locking is in operation between Shearwood and Lock Springs, 7.3 miles. Therefore, all train movements between Trenton and Lock Springs are in effect directed by signal indication. The dispatcher at Trenton manages the centralized control machine at that point and directs the operators at Lock Springs. Trains are dispatched by train orders from Lock Springs to Polo.

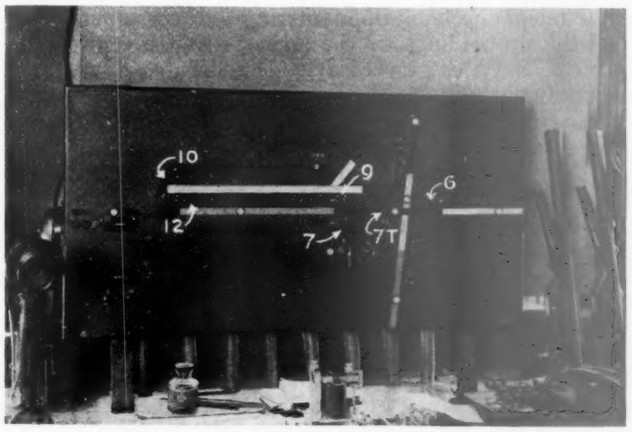
The traffic on the line between Trenton and Polo includes four passenger trains and four to five freight trains each way daily. In addition, one mixed train and one passenger train to and from St. Joseph run over this line daily between Trenton and Coburn.

The Control System

The centralized control used on this installation is the time-code system of the Union Switch & Signal Company. The machine, located in the dispatcher's office at Trenton, has four levers for switches and four for signals. Spare spaces are provided for 11 switch levers and 11 signal levers, so that when traffic returns to normal, power switches and signals for controlling train movements can be provided for the crossover layout at the Trenton yard, as well as for the crossovers at Hickory Creek and at Shearwood. The latter two crossover layouts are so located that a part of the main track can be used as a passing track, thus facilitating passing or run-around moves.

The signals used for directing train movements, as well as the regular automatic blocks are of the triangular three-indication color-light type. All signals used for directing train movements are considered to be the same as interlocking signals, giving a "stop-and stay" indication. They are so designated, therefore, not only by the absence of a number plate but also by a second unit, indicating red, which is mounted on the mast five feet below the top unit.

An arrangement of dwarf signals at the west end of Trenton is of special interest. Westbound signal 4149 is a high signal directing train movements as well as protecting the crossover switch. As train movements out of the yard through the crossover are at slow speed, it was decided to use a dwarf for signal 4151, since this arrangement would eliminate confusion on the part of engineemen between the two westbound signals, i.e., an engineman coming west on the main line would not incur the risk of overlooking signal 4149 and accepting signal 4151 in case the crossovers were lined up and the train was about to pull out of the yard. A dwarf was used also for signal 4153. These dwarfs are of the color-light type, the bottom unit displaying



The Control Panel at Lock Springs

red constantly as a second arm, while the three units above show red, yellow or green. The spring switches at Polo and Lock Springs are the Pettibone-Mulliken mechanical-switchman type. Eastbound trains ready to move out of the siding at Lock Springs are governed by dwarf-signal indications the same as if a power-operated switch machine were in service.

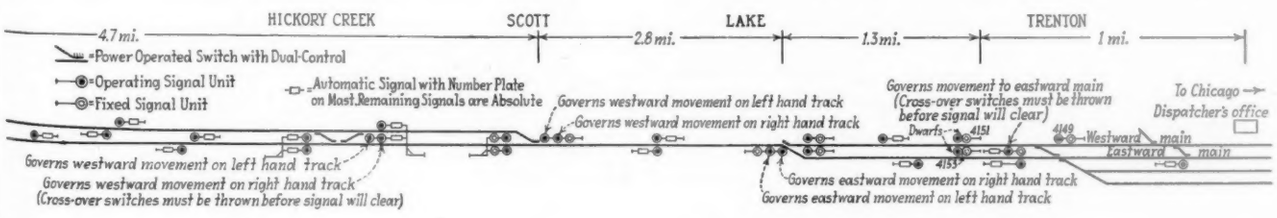
The Interlocking at Lock Springs

It was first planned to install an automatic interlocking plant at the crossing with the Wabash at Lock Springs.

However, as it was necessary to locate operators at this point for the handling of trains, it was decided to place the control of the plant in the station so that the operator could give preference to certain fast passenger and heavy freight trains. Furthermore, the operator has charge of directing train movements into and out of the passing track.

The control board for this interlocking is unusual in the simplicity of its operation. An ordinary telephone-type key is used as each lever, being located on the board in a position corresponding to that of the signal. The key or lever is moved forward or in the direction that the train movement is to be made, to

(*Continued on page 574*)



Control Territory and Interlocking at Lock Springs

N. & W. Efficiency Meeting Held at Portsmouth, Ohio

FOUR principal objectives of Norfolk & Western employees—improved N. & W. service; intensified activity to bring about equitable competition among all transport agencies; evolution of a concrete plan of traffic development; and active participation in the election of public officials who will work for greater efficiency and economy in government—constituted the theme of that road's thirteenth annual system efficiency meeting at Portsmouth, Ohio, on October 7. An elaborate telephone hook-up, centering at Portsmouth, carried the proceedings of the main session to more than 5,000 N. & W. employees, friends and patrons, who met simultaneously in 21 cities and towns along the line.

The program comprised morning, afternoon and evening sessions, the proceedings of the latter being those which were broadcast over the telephone hook-up. Each of the four objectives, mentioned at the outset, was the subject of a committee report and in addition addresses were delivered by W. J. Jenks, vice-president in charge of operation; J. E. Crawford, general manager; F. K. Prosser, manager of the coal department; H. H. Bannon, division counsel at Portsmouth; J. Marshall, special representative, American Railway Association; and W. L. Stanley, chief public relations officer, Seaboard Air Line. J. B. Baskerville, general claim agent of the N. & W., was general chairman of the meeting.

Address of Vice-President Jenks

Mr. Jenks discussed each of the four objectives in detail and in commenting on opportunities for improving N. & W. service he emphasized the role of courtesy. "The shipper or traveler," he said, "forms his opinion of the railway, not alone upon the speed and safety with which he or his freight is transported, but also by the courtesy of the railroad's employees. In other words the patron wants service with courtesy —and he is entitled to it."

"The twins of the economic situation—diversion and depression—have struck a severe blow at the railroads," he continued as he turned to a discussion of the loss of business. "A square deal is all that any industry is entitled to and all that it should have. The railroads have not been fairly treated. * * * Railroad employees and other interested citizens—and every man, woman and child in the country has a direct or indirect interest in the railroads—can bring about a change in the present unfair situation. Many of you have worked, and are working, to this end. But you must continue the fight for a square deal; for that which is rightfully yours."

On the third objective—a concrete plan of traffic development—Mr. Jenks called attention to the importance of coal tonnage as a revenue producer for the N. & W. He urged all to keep on the alert for new business and to keep informed about the services which the N. & W. offers.

"The last, but by no means the least important, topic of this efficiency meeting," he continued, "is the real necessity for each of us to take a more active part in the election of men to public office. The tremendous and unparalleled increase in governmental expenses and the unprecedented increase in taxes have brought about a crisis in our national and economic life. While the cost of nearly everything has come down, the cost of government—municipal, county, state and national—has increased. It has become a menace that must be dealt with. The answer to this problem and the solution of the other problems with which we are faced lies with you. When individual citizens of this country evidence a real desire for reduction in government costs, and in turn, taxes, and demonstrate their sincerity by action—then and then only will we have a decrease in the cost of our extravagant governmental machine.

Billions for Expenses; Only Millions for Economy

"Today, it is *billions* for expenses but only *millions* for economy. * * * The Norfolk & Western federal tax bill last year was 106 per cent greater than it was in 1921; its state, county and municipal tax bill was 61 per cent greater and its total tax bill 72 per cent greater than it was ten years ago. This is one illustration of the alarming increase in taxation, which is draining the very life blood out of industry."

In introducing his discussion of the part which the Norfolk & Western plays in the maintenance of government, Mr. Crawford cited, as examples of governmental extravagance, the valuation act and expenditures on inland waterways. He praised the activities of railroad employees and other taxpayers' associations in working for a reduction in government expenditures and taxes; and for their effort to secure a square deal for the railroads.

Mr. Prosser's address was in the main a discussion of methods to be followed in the solicitation of traffic, particularly coal traffic, by all employees. He did not recommend that each individual employee solicit traffic generally since "there are coal, freight and passenger men especially qualified to follow up the actual solicitation." He did suggest, however, that each local efficiency club on the N. & W. appoint a New Business Committee to which individual employees would pass along worthwhile information to be turned over to the proper traffic officer. This suggestion of Mr. Prosser's was incorporated as a recommendation in the report of Committee No. 3, which was concerned with the outline of a concrete plan of traffic development, and adopted at the meeting.

Mr. Bannon traced the history of the old Scioto Valley, one of the first units of the N. & W., and told of the important part played by the railroad in the development of Scioto County, Ohio. N. & W. taxes in that county average $515 a day, he said. Mr. Marshall discussed the loading of freight and pointed out that damage is due primarily to improper packing and handling.

Mr. Stanley traced the growth and development of the Norfolk & Western and continued to a discussion of the relationship of railroad labor and management; the problem of highway competition; and the necessity for railway employees to take more interest in public affairs and intelligently to exercise their right of franchise.

A feature of the meeting was the presentation of diamond buttons to six N. & W. employees who have spent 50 or more years in active service. The presentations were made by Vice-President Jenks, the veterans being introduced by Holcomb Parkes, advertising manager.

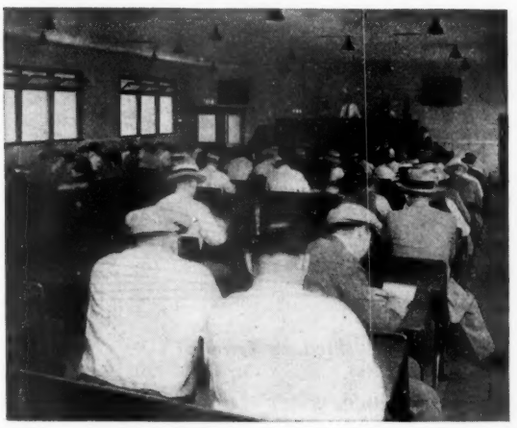
THE RAILWAYS OF CANADA DURING 1931 bettered their record for the safe carriage of passengers, only three passengers being killed in 1931 out of 26,550,556 carried. There was also an encouraging decrease in the number of grade crossing fatalities, the number killed being 85, the lowest figure since 1925.

Produce Terminals Expedite the Handling of Perishables*

A. R. E. A. committee reports on the principles of design and the facilities needed to insure quickest delivery of farm products

THE object of produce terminals is to expedite, concentrate and segregate the delivery of perishable farm products, such as fruits, vegetables and, in some cases, butter, eggs and poultry. The design of these facilities varies widely from that of freight houses and team yards handling non-perishable freight.

Business of this character is seasonal for various commodities and for the same commodities from different producing sections. It is highly desirable that the time involved in making deliveries be reduced to the absolute minimum and that the commodities be removed from buildings or cars as soon as possible. Most produce terminals have rigid rules setting forth definite periods for the display, sale and removal of commodities from auction and sales buildings, which benefit all concerned. They promote early delivery to retail stores, enabling a jobber to purchase with the assurance that prices will not be lowered a few hours after he makes his purchase; they release the facilities for the next day's business and reduce the amount of produce that may be spoiled by waiting too long for a favorable price.



Auction Rooms Are an Essential Feature of a Modern Fruit Terminal

For these reasons, produce terminals must be considerably larger than similar facilities for handling non-perishable freight. Obviously, traffic during peak periods must be handled without delay, and each day's traffic must be handled during a relatively short portion of the day.

From the standpoint of general economy, union terminals are favored, since they serve the entire trade of a community and can be served by all railroads, directly if practicable, or under equitable switching arrangements. This conclusion may be modified, however, in very large metropolitan areas, such as New York and Chicago.

Where two or more terminals are located in a city of average size, it is usually found that one terminal does practically all of the business. In the limited time allowed between the opening of the auction or private sales buildings to the jobbers and the closing time for sales, the jobbers naturally wish to inspect and compare the quality and price of all produce reaching the market. From a railroad standpoint, joint operation is usually cheaper and the first investment considerably less, as the joint terminal can take care of the various peaks of commodities which are shipped from different regions as already mentioned. For example, the peak of far western produce traffic is in the late summer and early fall, while that from the southern territory is heaviest during the spring and early summer.

In general, a produce terminal includes a team yard and a building or buildings for the display, sale and storage of produce, together with the necessary trackage. In further detail, it may have any or all of the following facilities:

1. Receiving yard.
2. Inspection and hold yard.
3. Team yard.
4. Buildings divided into separate stores with or without direct track service.
5. Buildings for display and private sale.
6. Buildings for display and auction.
7. Auction rooms.
8. Offices.
9. Cold storage warehouse.
10. Icing facilities.
11. Incinerator.
12. A farmers' market.
13. A track system serving the yards and buildings.

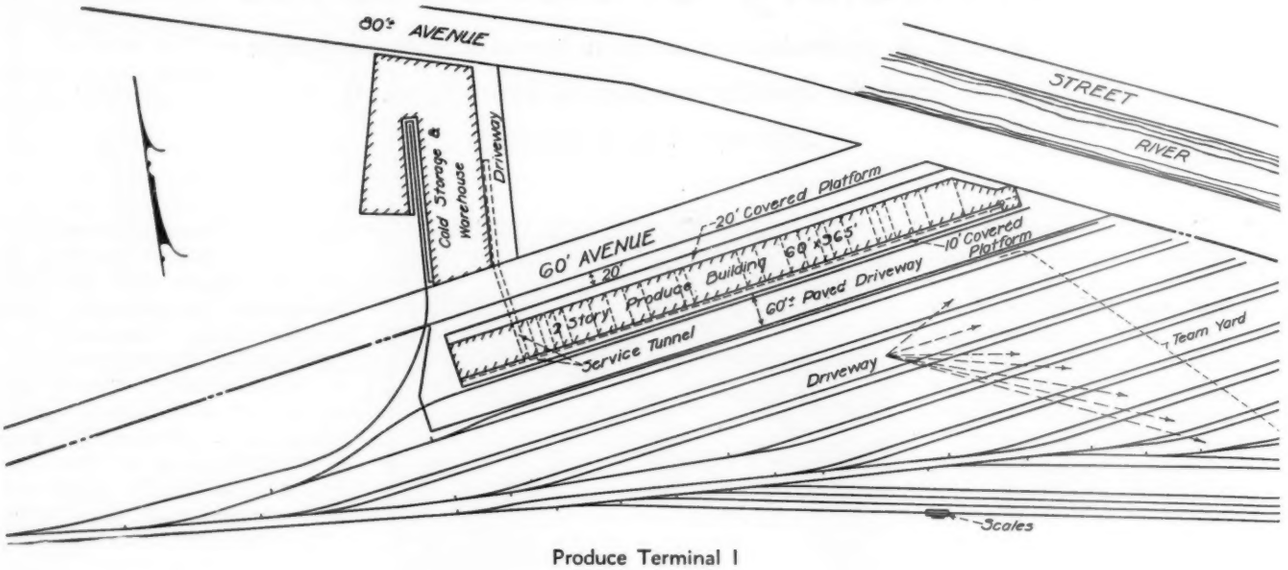
The type and extent of the facilities to be provided will depend on local conditions and the methods of handling traffic. They should be developed by conference with the dealers, who usually have local associations for handling general matters pertaining to the trade. It should be borne in mind, however, that the establishment of a new central terminal will often result in changing the methods at present in effect. Terminals now in operation provide for the following methods of handling produce:

1. Direct carload delivery from cars on team tracks after inspection, which includes diversion of cars from the terminal to other points.
2. Lot sales from cars on team tracks, either directly or over platforms. This method is usually employed in handling juice grapes, watermelons, etc.
3. Lot sales from cars on team tracks after inspection of samples in stores near the team yard.
4. Carload delivery to a store or group of stores with direct track service.
5. Carload delivery to auction and private sale buildings with direct track service.

* Abstracted from the report of the Committee on Yards and Terminals, presented at the American Railway Engineering Association convention at Chicago. The chairman of the sub-committee assigned to this subject was E. T. Johnston, special engineer, Erie. Descriptions of modern examples of produce terminals were published in the *Railway Age* of April 7, 1928, p 801; January 12, 1929, p 137; December 28, 1929, p 1463; and May 14, 1932, p 814.

As an example of method No. 5, cars are ordered to the house prior to a definite cut-off time in the afternoon or evening, either from hold tracks or from trains which will arrive during the evening. These cars are placed and unloaded during the night. Prospective buyers are admitted to the display shed early in the morning for a brief inspection of the produce, after which the auction is held or private sales started. Produce sold to jobbers is usually delivered to the tail board of their trucks and the house is cleared, so far as practicable, by noon or shortly thereafter. This affords an opportunity for cleaning the house thoroughly in advance of the following day's business. Where there is direct track service to buildings, cars are usually placed at night and unloaded and removed as soon as possible, in order that trucks may use the platform for loading produce during the early morning hours and, to a less extent, throughout the day.

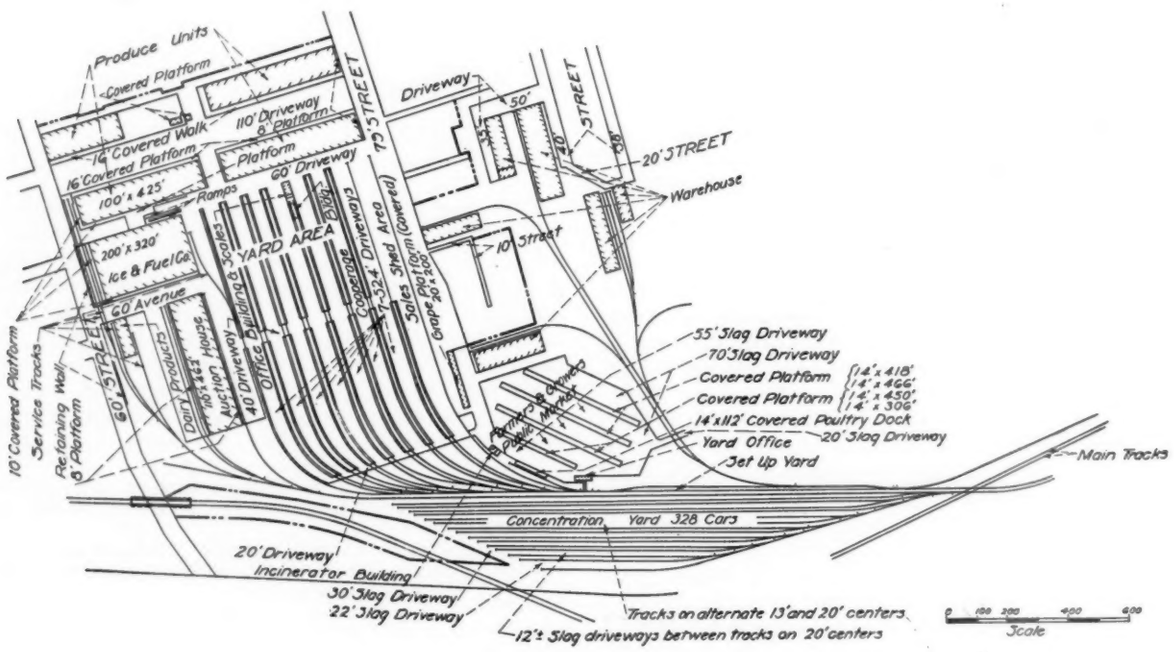
There are several important pier stations in Manhattan. These differ from inland terminals in that cars are delivered to them on car floats and unloaded over a trucking platform on the middle of the float. At these terminals delivery to trucks is much more difficult, since the piers are surrounded by water on three sides and the only trucking space is on the pier itself, while the only outlet is at the shore end of the pier. Otherwise, the requirements are quite similar to those for a building for display and auction.



Produce Terminal I

Location Should Be Convenient

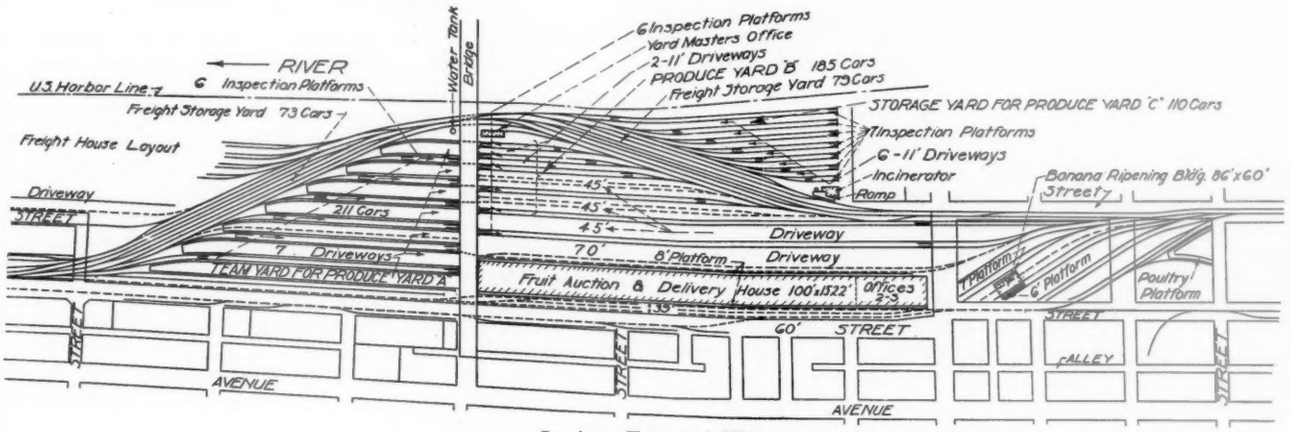
Primarily, the location should be convenient for the dealers, with easy access over wide and well-improved highways, and with relatively short hauls to distributing points. Congested areas should be avoided in locating a produce terminal. The site selected should be such that connections can be made to the railroad or railroads serving the terminal, which will allow quick delivery from road trains. This is quite important from the



Produce Terminal II

standpoint of road schedules. A location near a terminal yard is usually advantageous. The cost of available land, with reasonable provision for expansion, is also a factor.

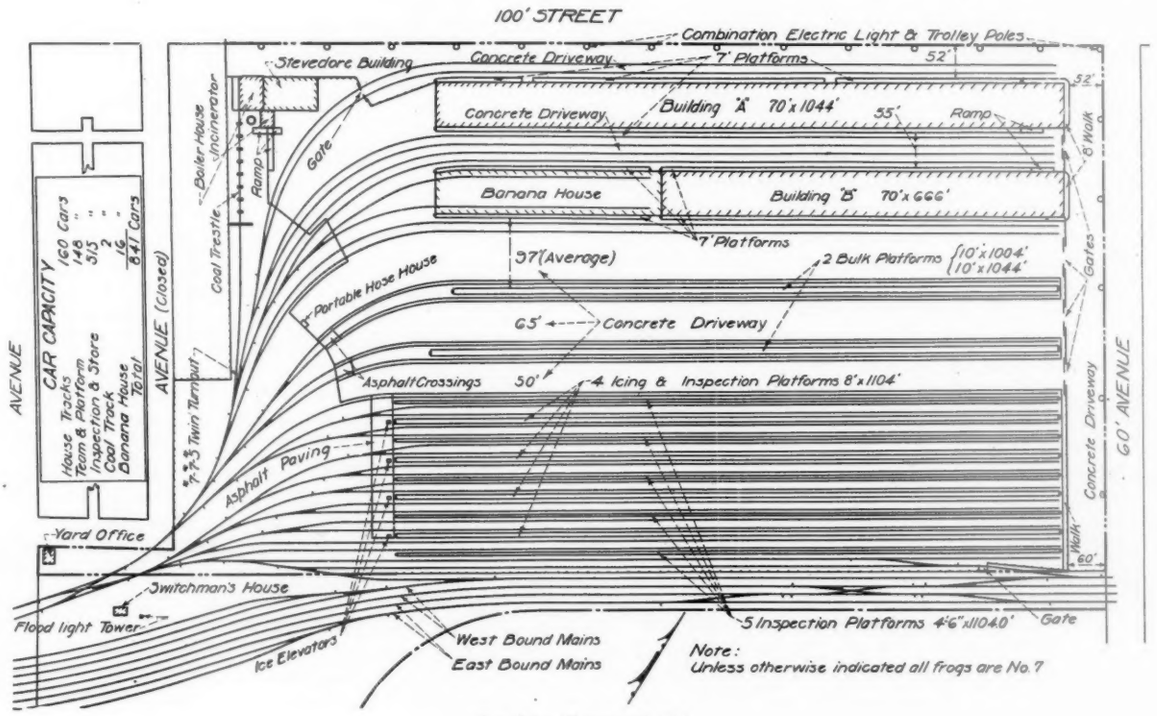
Owing to the general use of motor trucks, it is by no means essential that the terminal be located in the business district of a city. In several instances successful terminals have been built (with the consent of the trade) at a considerable distance from the former center of the produce trade, to avoid delays incident to congestion and to improve railroad service. The location will, of course, have to conform with local zoning ordinances unless such ordinances can be modified in the particular case.



Produce Terminal III

Features To Be Considered in Designing Buildings

In the design of auction and private sales buildings, it should be borne in mind that speed in operation is essential and that all possible sources of delay should be eliminated. Great care must be exercised to provide ample floor space for the mechanical handling of the produce from the cars to the warehouse floor; for display of the produce; and, particularly, for the assembly of various lots, often from several different locations on the floor, for delivery to trucks. Column spacing should be given careful study. Back up space for trucks should be as great as possible. Wide canopies should be provided to protect produce while unloading from cars and while delivering to trucks. There must be ample natural and artificial lighting. The roof, walls and floor should be insulated to control temperatures. Special attention should be given to the floor surface to insure that it will withstand the continued trucking which is an essential part of the terminal operation. Proper drainage should be installed to insure sanitary conditions. There are a number of other special features which must be considered, such as heating, refrigeration, air conditioning, etc., and sometimes special facilities, as for handling and ripening bananas. Space should be provided for the storage of material for cooperage. Offices and auction rooms are usually located at one end of the building or in the second story. Auc-



Produce Terminal IV

tion rooms require exceptionally good lighting, ventilation and acoustic treatment.

Where the terminal building consists of a number of individual stores, the requirements should be worked out with the dealers. As these buildings usually consist of a basement and one or two stories, elevators will be required and often platform scales are needed. The economical width of auction and private sales buildings appears to be between 70 ft. and 110 ft.

Driveways between buildings or between a building and a team track should be about 80 ft. wide. Shelters, properly heated and lighted, should be provided for team-yard checkers.

Track Layout

The extent of the track layout depends on the number of cars to be handled at peak periods and on the average standing time until the cars are released. In team yards, where sales are made directly from the cars, these sales often consume several days. Large produce terminal yards almost invariably have, and need, a greater track capacity than would be required for handling other commodities, owing to the long standing time required, either for the reasons already stated or for holding cars for reconsignment, as well as to insure ample capacity for peak traffic. The layout should be designed to afford the utmost flexibility and speed of operation and should be as compact as possible, as land values are usually quite high.

The layout may include any or all of the following:

(a) A receiving yard, especially if transfers from several railroads enter the produce terminal and if it is desired to segregate the movement of this traffic from other yard operations. This yard may also be used for assembling empties and reconsigned cars.

(b) A hold and inspection yard. This may be a separate yard or it may be combined with the receiving yard. It is for the purpose of holding cars and inspecting contents until the cars are ordered to the house or team tracks or until reconsigned. Narrow inspection platforms, covered and lighted, may be provided between each pair of tracks. These platforms should be 4 ft. to 6 ft. wide, at least 5 ft. 9 in. from center line of tangent track and should be 3 ft. 5 in. above the top of rail.

(c) A team yard. The size of the team yard depends on the number of cars to be handled at peak periods and on the average standing time. Driveways should be hard surfaced and at least 45 ft. wide. Modern practice tends to increase this width (in some cases to as much as 65 ft.) due to peak business being handled during a relatively short period of the day and to the fact that cross driveways are usually omitted to control trucking, facilitate checking and prevent theft. The size and shape of the property available usually have some effect on the width of driveways. Inspection platforms are sometimes provided but are of questionable value in a team yard. Extremely long team tracks should be avoided.

(d) House tracks. To permit the opening of refrigerator car doors, tracks should be on not less than 13-ft. centers, while the center line of a tangent track adjacent to buildings or building platforms having a floor level more than 3 ft. 5 in. above the top of rail should be not less than 8 ft. from the face of the building or platform. If a platform is 3 ft. 5 in. or less above top of rail, the center line of tangent track may be 5 ft. 9 in. from the face of the platform. These clearances must, however, conform with the requirements of state laws. Where platforms serve both cars and trucks, as is usually the case, a vertical height of 3 ft. 9 in. to 4 ft. above top of rail is recommended.

Live poultry platforms should be 16 ft. to 20 ft. wide, 5 ft. 9 in. from center line of tangent track and 3 ft. 5 in. above top of rail. These platforms should be covered, and supplied with water and light. The roof supports should be so located as to minimize interference with trucking and handling crates. Usually, space should be provided near the platform for crate storage and for co operage materials.

Garbage and Refuse Disposal

A large amount of garbage and refuse accumulates in a produce terminal, which must be disposed of promptly. In small layouts this may be done by city collection or by contract. In larger layouts an incinerator, designed to burn garbage having a high water content, may be necessary. It is usually economical to install an incinerator which will handle one day's collection in 8 or 10 hr. to keep operating costs at a minimum and at the same time provide for emergencies and future expansion of the terminal. The temperature in the combustion chamber and the permissible density of smoke are usually fixed by law and vary in different localities. Cars should be cleaned thoroughly after unloading and all refuse and garbage removed from platforms, buildings, etc. Special equipment, such as sweepers, dump carts, etc., should be provided in large terminals.

General Considerations

Ample drainage is essential for both buildings and yards, in order to maintain sanitary conditions.

Floodlighting of the entire area is desirable, in addition to local lighting around buildings.

The entire area should be fenced to allow close supervision and to prevent pilfering, all truck movements being made through definitely assigned entrances and exits.

A farmer's market is sometimes considered a desirable adjunct, as much of the farm produce is sold to jobbers.

A cold-storage warehouse is also considered a desirable adjunct, with suitable track service and convenient means of communicating with other buildings.

Icing is usually done by contract with local dealers. All cars in the team and hold yards should be accessible from either driveways or icing platforms. In one large modern terminal, icing in the hold and inspection yard is done from the roof of wide inspection platforms, the ice being delivered to elevators at the ends of the platforms and handled by conveyors in the usual manner.

In another terminal, icing in the hold and inspection yard is done from narrow driveways. In both cases, cars in the team yard are iced from trucks with elevating bodies. The former method conserves space and might be advantageous in connection with a cold storage plant, but appears to be more expensive and less flexible than direct icing from trucks.

Adequate parking space for dealers' automobiles and trucks should be provided in the terminal area.

Truck scales, where required, should be located at a point convenient for the drivers, and it is desirable to have this location near the freight office.

While this discussion relates mainly to facilities for handling fruits and vegetables, there is, at present, a strong tendency to concentrate all allied food markets at one terminal, such as dressed meats and poultry, butter, eggs, cheese, groceries, canned goods, etc.

The committee submitted, as part of its report, layouts of four installations of produce terminals which have been reproduced in the four drawings appearing in this article.

The Road to Recovery*

Business men, not radicals, to blame for government inroads into field of private enterprise

By L. A. Downs

President, Illinois Central

GENERALLY speaking, the things that retard progress for any one of us retard the progress of us all, and the things that facilitate progress for any one of us facilitate the progress of us all. This observation applies with particular force to the railroads. There was a time when the interests of the railroads as producers of transportation were rather widely thought to be opposed to the interests of business men as users of transportation, and it was thought that what helped one hurt the other and what hurt one helped the other. Out of this misconception grew an open warfare which permeated politics and served to shape public policies to the great harm of the railroads and of business.

Our ideas have changed since then. I think it is correct to say that among railroad men today will be found a very earnest desire to help those who are engaged in other kinds of business, and among business men will be found an equally earnest desire to help the railroads to find solutions to their problems. The lesson which we have learned in the relationship of the railroads and other kinds of business has also been learned in the other relationships of our economic life. We have been economic partners all the time, but we have more of the feeling of partnership than we used to have.

I heartily wish I could tell you how long the road to recovery is and how many turnings and how many hills are to be encountered before we come to the end of the road. Of course, I cannot. However, there is one thing I do know, and that is that the road along which we are traveling leads certainly to recovery. We are on that road, we are going forward on it all the time, and each step we take brings us that much nearer the goal we all want to reach.

Excessive Taxation Greatest Obstacle

I want to direct your attention to obstacles that are to be encountered along the road to recovery, to point out how I think we can make the road smoother and facilitate our progress upon it. The greatest obstacle of all along the road to recovery is excessive taxation. The railroads of this country pay approximately one million dollars a day in taxes. It took the net revenue of more than 75,000 miles of railroad for the whole of 1931 to pay the 1931 taxes of the railroads of the country. In the first six months of 1932 the railroads worked 104 days for the tax collectors and only 79 days for their owners. You have heard all these and many other things about railroad taxes many times over, but I wonder how many of you know that there are literally hundreds of counties, school districts and other taxing units throughout the United States where the railroads pay more than one-half of all the taxes that are collected by those units.

It is not because of the effect of taxes upon the railroads alone, however, that I invite your attention to this obstacle on the road to recovery. Taxation lays its heavy hand upon every one of us. It reaches into every worker's pay envelope. It takes something out of every landlord's rent check. It adds to the cost of our raw materials and our finished products and to the cost of transporting them. It makes our letters cost more, our gasoline cost more, our food and fuel and clothing cost more. It intrudes, directly or indirectly, into every business transaction. It makes every one of us work several hours every week not for ourselves or for our families or for the business in which we are engaged but for our various governments. It makes us contribute to the support of public servants who are, more often than not, our masters.

Taxation is not a new problem, although it has grown and is still growing in size and importance. We have devoted a good deal of time and effort to it in the past. In the past, however, our primary emphasis has been upon eliminating inequalities of taxation. Our attitude seemed to be that so long as the burden of taxation was equitably distributed among us, we did not care very much how heavy the burden came to be or how much it bore down upon us all; we were perfectly willing to pay our share. I do not criticize the effort that has been made to eliminate inequalities of taxation. It was splendid, so far as it went; the trouble was it did not go far enough. There are still many glaring inequalities of taxation that need to be straightened out, but we also need to have, and we are coming to have, a concept of our mutual interest in the reduction of all taxes.

Uprising of Taxpayers Is On

The uprising of the taxpayers of the country is on, and it is beginning to have its effect. Spenders of tax money are scared. So long as our main emphasis was upon inequalities of taxation, it was a relatively simple matter for the spenders of tax money to escape the blame for their waste and extravagance by pitting one group of taxpayers against another. If we were fighting among ourselves, we did not have much energy and resourcefulness left to fight our common enemy. But the taxpayers have been getting together. Business men and farmers everywhere are becoming awakened to their common problem. Great newspapers have joined the crusade and are lending the weight and the influence of their prestige to it. And the effort is being directed toward the seats of government, where the expenses prevail which cause taxes to be high.

One thing we need very much to realize, of course, is that the burden of government is something which we have put upon ourselves. No longer are taxes exacted from us by some authority higher than ourselves, as they were in the days when the Colonists dumped the tea into Boston harbor. For approximately a century and a half we have been governing ourselves and taxing ourselves, and the load of governmental expense and taxation that has grown so burdensome is of our own making. Taxes are high because we have let them come

* From an address at the Transportation luncheon of the Illinois Chamber of Commerce, Chicago.

to be high, and they are going to be reduced in direct ratio to the effort which we are willing to put into having them reduced.

We also must realize that many of the governmental expenses which cause taxation are for legitimate and necessary projects. We cannot very well get along without an army and a navy for national defense. We need an adequate police force and a fully equipped and fully manned fire department for local protection of our homes, lives and property. Public education has come to be accepted as a natural and proper function of government. All these and many other things are more or less properly regarded as essential, and payment for them cannot be avoided, even if it does add, in some cases greatly, to our burden of taxes.

I do not mean to say that we should condone waste and extravagance in these necessary expenditures. We all have had to economize greatly in our respective fields of endeavor, and I think we are entirely within our rights in demanding that the spenders of our tax money exercise comparable economy in expenditures for even the necessities of government. Our economizing has not been a case of what we have wanted to do; it has been a case of what we had to do. We have had to reduce purchases, consolidate and eliminate departments and divisions, take off trains, close stations and do a thousand and one other unpleasant things to reduce our outgo and to bring it within reasonable distance of our income. Necessity is a hard taskmaster, and we all have felt its lash in the last three years. If we have overlooked anything, it is in failing to demand as sternly as we ought that the spenders of our tax money go as far as we have had to go in economizing, even in necessary expenditures.

Cannot Lift Ourselves to Prosperity by Bootstraps

I am aware that anyone who practices or preaches economy now-a-days sets himself in opposition to the happy-go-lucky school of economic thought which tries to have us all believe that we can lift ourselves into a state of prosperity by our own bootstraps. When we reduce forces of governmental employees and curtail buying for governmental projects, we reduce payrolls and purchases. Conversely, it is argued, the way to build up the buying power of the country and to make times good for everybody is to spend more tax money. The idea is so silly that it would not need to be challenged except for the fact that it has been advanced and strenuously advocated by certain men of prominence in business and public life. We all might wish that our economic problems were as simple of solution as that, but unfortunately they are not. Economies are unpleasant but necessary things in times like these, and they offer the only hope of recovery from the excesses which caused the unhappy state of affairs that we all have been experiencing.

I for one am convinced that we cannot look to politics for the necessary leadership to eliminate this great obstacle on the road to recovery. There are many honest and capable men in politics, men with sound convictions and the courage of their convictions, who are willing to make any sacrifice that might be necessary in support of their principles. Personally, I think such men, if they are qualified otherwise in the art of politics, will win out in the long run. Unfortunately, however, all too many of our political leaders are not possessed of such honesty and ability and foresight, and the only way to bring them into line is to create a condition of public opinion that will force them, as a matter of political expediency, to follow the right course whether they believe in it and are willing to make sacrifices for it or not.

As a practical contribution to our consideration of this common problem, I should like to offer a definite program for tax reduction. The path to tax reduction, of course, is through reduction of governmental expenditures. As a step toward tax reduction, I suggest that governmental expenditures be grouped into these three classes.

First, I would list the expenditures that are absolutely essential. In this class fall the expenses of the primary functions of government, the cost of operating the executive, legislative and judicial branches, the protection of life and property, national defense and activities of similar nature which are of direct or indirect benefit to every member of our population.

Second, I would list the expenditures that are non-essential but at least relatively harmless. In this class fall those governmental activities which have developed in more or less recent years at the demand of organized minorities with the tacit consent or agreement of the public generally.

Finally, I would list those activities of government and those expenditures of tax money which, under the guise of helping one portion of our population, serve principally to hurt others and to increase the burden upon all the taxpayers.

As I have said before, I believe we should demand the exercise of utmost economy even in the most necessary of governmental functions. True economy does not necessarily mean going without, but it does mean the avoidance of waste, the elimination of every kind of extravagance and getting a dollar of honest value for every dollar spent. These principles should be our guide in all expenditures of tax money.

Functions of Government

As to the second classification, I think the time has come to revise our thinking as to what constitutes the proper functions of government. In the past we seem to have been guided largely by the principle that we should have the government do for us everything that it can do approximately as well as private enterprise can do. I propose that we should have the government do nothing for us which private enterprise can possibly do. I am aware that this strikes pretty close to some of our cherished ideas and pet hobbies, but unless we are sincere enough and patriotic enough to make such sacrifices, we are lost.

As to the third classification—those expenditures which in the guise of helping a portion of our population hurt other portions of our population and lay a heavy hand upon all payers of taxes. It would be impossible for me to express myself as strongly as I feel. Every citizen who is engaged in a lawful and honorable enterprise has a right to expect and demand that he be given an opportunity to conduct that enterprise with a minimum of governmental interference. That this is not the case is nothing short of a disgrace to our country, a blot upon our national honor.

If I speak with some heat upon this phase of the subject, it is because as a railroad man I come up against this very thing. The railroads have suffered as no other industry has suffered from the misdirected efforts of government in the field of regulation and interference with the operation of natural laws. The federal government has spent hundreds of millions of dollars to canalize inland waterways in order that competitors of the railroads operating on them might have an unnatural and unfair advantage over the railroads. It has also put millions of dollars into barge lines that were started ostensibly as an experiment 14 years ago and with each passing year have become more firmly entrenched. It has also made up the deficits that have been incurred by these barge lines, over and above

granting them freedom from taxes, a free right-of-way and freedom from the necessity of earning any return upon the investment made in them. Municipalities have built barge terminals to be operated at a loss in order to increase the subsidies of the government barge lines. Airports have been built at public expense to facilitate transportation by air, and the air mail has been heavily subsidized by the federal government. The federal and state governments have spent not millions but billions of dollars to provide highways over which commercial carriers have been allowed to operate in competition with the railroads. Finally, while holding a tight rein upon the railroads in the matter of regulation, our governments have allowed the competitors of the railroads to operate in some cases almost entirely free of comparable regulation. In these and other ways all our various governments—federal, state and local—have subsidized and aided carriers which have taken the profit out of railroading by virtue of the lower prices or more complete service which they have been able to perform by reason of such governmental favoritism.

Railroads Robbed by Government

Speaking plainly, the railroads have been robbed by the governments which their own taxes help to support. The users of railroad transportation, which includes every business man and farmer of the country have been robbed in the same manner. And by decreasing the ability of the railroads to pay taxes, every other taxpayer has been robbed by this favoritism.

I take no narrow view of other forms of transportation. I think there is a place in a rounded national system of transportation for water carriers, road carriers and air carriers as well as rail carriers. However, I do feel very strongly that in order to find their respective places in such a national system, it is necessary that all forms of transportation be required to stand on their own feet and pay their own way, that they be regulated alike in all respects, and that subsidies in every form be withdrawn from their support. By the very nature of things, railroads are fitted as no other form of transportation is fitted to perform mass transportation at low cost. The principal reason why other forms of transportation have at times been able to undersell the railroads and survive is that they have been supported by government subsidies in the form of free, or nearly free, rights-of-way, terminals and so on. Eliminate such favoritism, and it will then—and only then— be possible to have the co-ordination of transportation agencies which we must have for the sake of every other kind of business in this country.

Against such favoritism in government the railroads have resolutely set themselves and pledged their earnest efforts, and I am proud to say they have the support of the great majority of business men. It is not a selfish fight that the railroads are making, notwithstanding that they are fighting for their very existence. It is a fight that concerns every business man as a user of railroad transportation. It is a fight for fundamental principles of government and taxation that are sound to the core. It is a fight for the preservation of American institutions and the American form of government.

The radical elements of our population are not to blame for the government's being in so many kinds of business. The strongest supporters of the government in business—that is, in other people's business—have been business men themselves. The short-sighted policy of dragging the government into business activities has been promoted in very large part by business organizations and individual business men who have sought thereby to advance what they conceive to be their selfish interests regardless of the harm to others or the expense to us all. That thing must stop. The day is past when favors can be asked from or granted by the government. That policy was bad enough in the time of prosperity; in a time of adversity such as we have been going through it is ruinous. The man who urges or condones such a policy is no less a traitor to the country than the man who gives aid and comfort to the enemy in time of war.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading for the week ended October 8 continued the upward trend which has been in progress since August 6, with the exception of the week which included the Labor Day holiday. The total was 625,636 cars, an increase of 3,561 cars as compared with the week before and a decrease of only 138,182 cars as compared with the corresponding week of last year. As compared with 1930 it was a decrease of 329,146 cars. This makes the peak so far this year a week later than it has been in the last four years, when the seasonal Fall decline began after the week of October 1.

Loading of grain and grain products showed a decrease of 3,504 cars as compared with the week before, forest products a decrease of 704 cars, and merchandise a decrease of 158 cars, while other commodity classifications showed increases. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

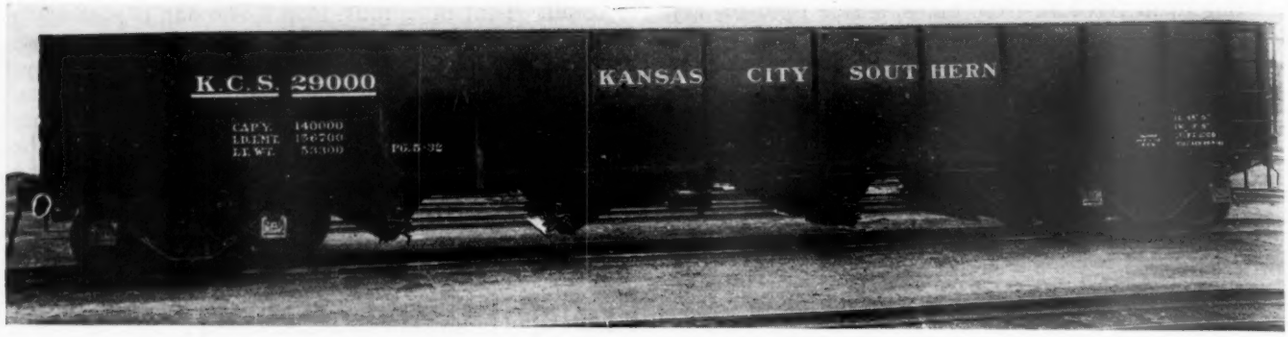
Week Ended Saturday, October 8, 1932

Districts	1932	1931	1930
Eastern	136,735	167,952	213,712
Allegheny	110,309	145,096	188,226
Pocahontas	44,823	50,667	56,109
Southern	93,339	105,698	133,961
Northwestern	81,104	103,022	136,674
Central Western	103,835	124,653	152,745
Southwestern	55,491	66,730	73,355
Total Western Districts	240,430	294,405	362,774
Total All Roads	625,636	763,818	954,782
Commodities			
Grain and Grain Products	36,013	36,690	40,571
Live Stock	22,554	28,116	31,319
Coal	132,947	139,755	176,609
Coke	4,984	5,147	9,048
Forest Products	18,425	24,633	39,228
Ore	6,645	23,277	37,017
Merchandise L.C.L.	179,641	217,551	242,634
Miscellaneous	224,427	288,649	378,356
October 8	625,636	736,818	954,782
October 1	622,075	777,712	971,255
September 24	595,746	738,036	950,663
September 17	587,302	742,614	952,561
September 10	501,824	667,750	965,813
Cumulative total, 40 weeks	21,602,394	29,485,525	36,303,983

Car Loading in Canada

Car loadings in Canada for the week ended October 8 amounted to 51,959 cars, an increase over the previous week's loadings of 146 cars, and the index number showed a fractional increase from 67.36 to 67.56. Grain was lighter than for the previous week by 1,690 cars, but coal increased by 785 cars, miscellaneous freight was heavier by 613 cars, merchandise by 129 cars, pulp and paper by 109 cars and other forest products by 165 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
October 8, 1932	51,959	19,034
October 1, 1932	51,813	19,334
September 24, 1932	51,915	19,007
October 3, 1931	56,221	22,436
Cumulative Totals for Canada		
October 8, 1932	1,677,116	762,126
October 3, 1931	1,944,808	1,022,241
October 4, 1930	2,449,137	1,338,014



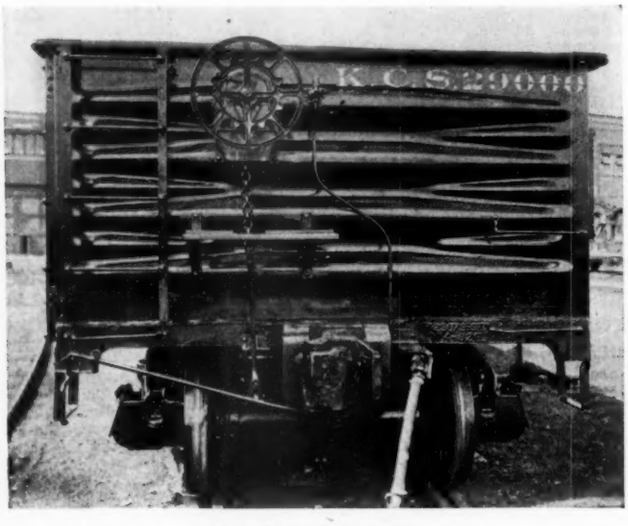
All-Welded Gondola with Cast-Steel Underframe

Kansas City Southern Gets All-Steel Hopper Gondolas

Twenty-five 70-ton cars have one-piece cast steel underframes with integral hoppers—Welded construction used throughout

THE Kansas City Southern has recently completed building, at its main shops, Pittsburg, Kansas, a lot of 25 all-steel general-service hopper-bottom gondolas, of 70-ton nominal capacity, which include a number of novel features in design, particularly the use of one-piece cast steel underframes, and superstructures made of copper-bearing steel completely fabricated by electric welding. The purpose of this construction is to provide maximum corrosion resisting qualities, long life and comparative freedom from maintenance expense in cars equally adapted to handling high-sulphur coal, coke, gravel, pipe, lumber, structural steel, etc. The wide adaptability of the cars to various loadings, as demonstrated by the performance of a number of cars in regular service since the middle of August, tends to reduce empty car mileage and thus affords an important advantage from an operating standpoint.

Additional advantages, including simplicity of design, fewer detail car parts, seams and joints and, consequently, lower fabrication costs, all are obtained without any sacrifice of strength or penalty payment in the way of substantially increased weight. Stresses in all parts of the car are confined to commonly accepted limits, and the somewhat greater weight of the cast steel underframe, over equivalent fabricated steel construction, is practically offset by the saving in weight due to welding the car superstructure. The provision of the underframe, hoppers, etc., in a single 18,000-lb. casting replaces 183 structural pieces and 2,250 rivets. In the superstructure 1,000 rivets were eliminated due to the use of welding in the fabrication of the car. The only rivets in the car are those used in the application of safety appliances and hopper door locks. The all-welded construction, using plates and standard rolled shapes, avoids the use of expensive forming dies for making side stakes and other pressings and also simplifies repairs in case of damage.



End View of Gondola

The car has a cubic capacity of 2,336 cubic feet, level full, and 2,690 cubic feet, heaped. It weighs approximately 53,000 lb. light, and, with a nominal load of 140,000 lb. weighs 193,000 lb. at the rail, or 17,000 lb. less than the permissible A.R.A. load limit at the rail. The car may, therefore be loaded to 17,000 lb. above its nominal capacity, which could not be done if the light weight were excessive. Other general dimensions of the car are: inside length, width and height, 45 ft. by 9 ft. 6 in. by 4 ft. 10½ in.; length over striking plates, 46 ft. 2 in.; length over couplers, 48 ft. 8 in.; truck center spacing, 36 ft.; width over all, 10 ft. 3¾ in.; height above rail, 8 ft. 4¾ in.

Cast-Steel Underframe Resists Corrosion

In deciding upon a car of the type described, the management of the Kansas City Southern was influenced by the diversified nature of the commodities offered for shipment on this line and with particular thought to the bituminous coal traffic in the Kansas, Missouri and Oklahoma fields. Experience indicated

that open-top cars of conventional fabricated steel construction are highly susceptible to oxidation and corrosion and while the adoption of copper-bearing plates and shapes has alleviated this trouble to some extent, it is impossible to overcome entirely the destructive action of steel-attacking acids released from wet coal and the resultant corrosion and high maintenance to rolled-steel plates and shapes. The corrosion-resisting qualities of cast steel as demonstrated in locomotive tender frames and other locomotive and car parts over a period of many years, led to the conclusion that this material would be ideally suited for the underframes of open-top cars, particularly hopper cars.

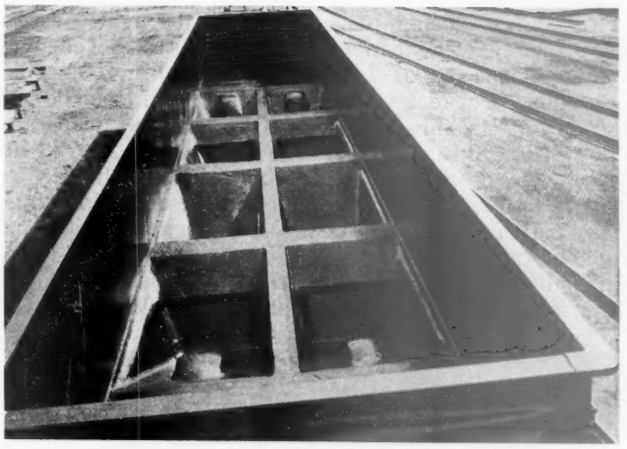
A special Commonwealth one-piece cast-steel underframe, with eight hoppers, body bolsters, striking castings and A.R.A. standard draft-gear pockets cast integral, was accordingly designed and built for the K. C. S. car by the General Steel Castings Corporation. This underframe carries 11 downward projections on each side of the car for the application of side stakes. The bolster design provides for ample area of contact with the truck side bearings which are of the Wine double-roller type. The integral end sill and striking casting are arranged for the application of the Union coupler-centering device. The end hoppers are designed with wheel hoods, as shown in one of the illustrations, to allow ample clearance when the trucks are swivelling on curves under load.

The four-wheel trucks are of the National type B, with 6-in. by 11-in. journals and 33-in., 850-lb. single-plate, bracketted, chilled-iron wheels. The spring arrangement and design of this truck is intended to provide progressively increasing capacity and non-harmonic, dampened recoil.

Car Superstructure Fabricated by Electric Welding

One of the considerations in the decision to fabricate the car superstructure by electric welding was to eliminate numerous seams and joints which provide recesses to harbor acid concentration and accelerate corrosion. In addition, such seams and joints as are necessary in the .20 per cent copper-bearing rolled-steel superstructure are effectively sealed against the entrance of corrosive substances.

Realizing the vital importance of correct welding material and procedure in successfully and economically building all-welded cars, the first problem was the selection of suitable welding rods and the development of a practical method of assembling and welding the superstructure plates and shapes and securing them to the cast steel underframe. With respect to the welding rods, numerous laboratory tests were conducted with various shielded-arc and bare-electrode rods which conclusively proved the superiority of the shielded-arc rods for this work. These rods combine high tensile strength and ductility, are capable of much higher welding speeds and prove more resistant to corrosion, as demonstrated by accelerated corrosion tests made by submerging test specimens in dilute hydrochloric acid.



Interior View of K.C.S. 70-Ton All-Welded Hopper-Bottom Gondola

The plates forming the sides of the car were purchased from the mills and resquared to exact dimensions. Three plates were used for each side, the lengths being such that each butt joint is backed up by one of the side stakes. Each side, including the plates, side stakes and top bulb beam angle was completely assembled and welded prior to being applied to the underframe.

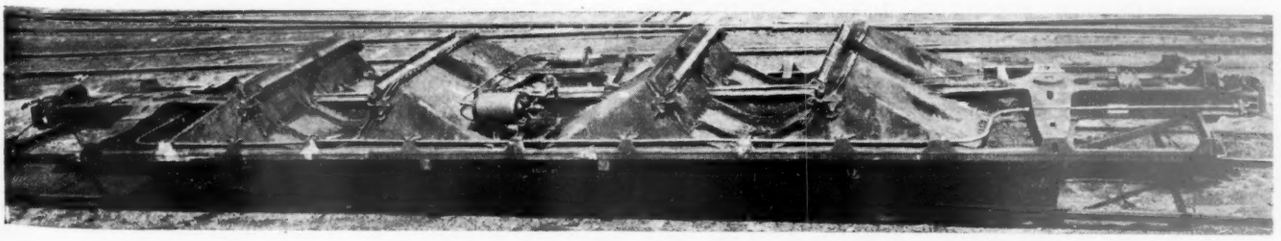
The cast steel underframes, when received, were unloaded in the steel car shop by an overhead traveling crane, and placed up side down on push cars. All underneath work was completed while the underframe was in this accessible position. On completion of this work, the underframe was placed on its permanent trucks, which were previously assembled. The previously completed sides were then placed in position, squared and welded to the underframe. The pressed-steel ends, with top bulb angles welded in place, were then swung to position, squared, clamped and welded, after which the top corner bands were welded in position. The application of safety appliances and hand brakes completed the assembly.

The cars were painted inside and out, a rust-inhibitive primer coat being first applied. The underframe and the trucks were then painted with Texaco No. 1076 car cement, the interior and exterior of the car body being painted with rapid-dry black. The stencils were applied with white lead.

Severe Tests Show Rigidity of Car Design

The following outline covers the results obtained in tests of the first sample car No. 29000, built to the new K. C. S. 70-ton hopper bottom design.

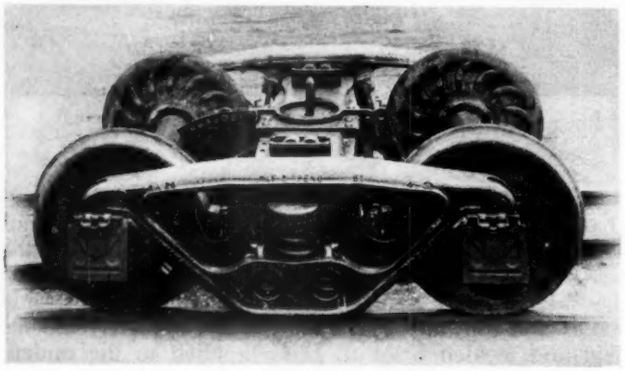
Deflection Tests: A gaging wire was strung on each side of the car, parallel to the machined surface of the side sills, the ends terminating at, and being secured to, the side stakes at the center line of the bolsters. A base line was scribed on the side stake at the center of the car and measurements taken from this point to the gage



Cast-Steel Underframe in Inverted Position for the Application of Hopper Doors, Brake Equipment, Etc.

wire. The deflection at the center of the light car was 1/16 in. scant; deflection loaded with sand levelled to nominal capacity of 140,000 lb., 3/16 in.; deflection, loaded with sand levelled to load limit of 156,700 lb., 7/32 in.; deflection with 156,700 lb. of sand heaped at the center, 30 in. above sides and 12 ft. long, 9/32 in. The deflection was uniform at both sides of the car.

Buffing Tests: After completing the deflection tests, the load of sand (156,700 lb.) was again levelled off and the car moved to the yards for the buffing test. A string of seven 80,000-lb. capacity 27,000-series K. C. S. cars loaded with coal, and with hand brakes set, were



National Type B Truck Used on K.C.S. All-Welded Gondola

used to drop the car against. The knuckles on both the first string car and car No. 29000 were closed; a distance of 100 ft. was marked off; and the speed of car determined by a stop watch over this distance.

Three impact tests were made at speeds of approximately 5, 7 and 12 m. p. h. On the third impact, the coupler on the 27,000-series car was broken, and the side sills sprung. Coal in five of the seven cars in the string was shifted. The sand in car No. 29000 shifted from level to one end of the car. Under this severe test, car No. 29000 was not damaged in any way. The coupler horn did not come in contact with the striking pad on the end sill. The steel ends and sides were not distorted in any way; welded seams showed no indication of rupture; side-sill deflection decreased approximately 1/32 in., due to the load shifting. The hopper doors were not sprung and the Wine locks held them securely fastened.

Curve Tests: Following the buffing tests, the car was moved around the freight house lead (Pittsburg), a 20-deg. curve, and no difficulty was experienced. The clearances were as follows: Hopper to wheel flange, horizontal minimum, 3½ in.; hopper to wheel flange, vertical minimum, 2¾ in.; truck sides clear wheel rim, 1¼ in.; brake hangers clear truck sides, ⅝ in.; all other clearances OK.

Sand was then removed from the car and it was reloaded with company coal to full capacity including a 12 in. center heap. The weight at the rail was 194,700 lb., net load 141,500 lb., or 1,500 lb. over the nominal capacity of 70 tons. The car was billed to Port Arthur, Texas, June 18, and, completing the round trip, returned to Pittsburg June 27. During the trip, the car was in a number of heavy rains with the result that the lading accumulated considerable weight, as shown by the following scale weights: Gross weight loaded car as returned from Port Arthur, 197,100 lb.; net weight, 143,800 lb.; net weight, original coal load, 141,500 lb.; accumulated moisture, 2,300 lb.

The car was then spotted on the coal tipple, and dumped, after which it was reweighed to determine the per cent of self-clearing capacity based on the amount of fuel still remaining in the car. It was found that the self-clearing capacity was approximately 85 per cent, based on actual weights.

A recheck for deflection with the car under load, as returned from Port Arthur, showed the deflection to be 3/16 in.; furthermore, a recheck of the light car showed no permanent set, the deflection being the same as when the car was released from the shop, or a scant 1/16 in. A close examination did not disclose any indication of bulging either of the sides or the ends. The car was square and all welded seams were in satisfactory condition. A hand brake stop test was made with the loaded car (197,100 lb., at the rail) from a speed of approximately 15 m. p. h. The car was stopped in a distance of 360 ft. in 32 sec. on a descending .39 per cent grade, all parts of the brake gear functioning satisfactorily.

Subsequent tests of the K. C. S. 70-ton all-welded hopper cars, some of which have now been in service over two months, have failed to develop any weaknesses, and one surprising observation has been the unexpected durability of the interior coat of paint after several coal loadings. On one occasion a car of this series was cornered and the corner band split, but no distortion of the sheets or posts took place and none of the welds gave indication of failure.

C. R. I. & P. Extends Centralized Control

(Continued from page 563)

clear the signal and is returned to the center position for normal. The signal indications are repeated by small lamps located near the levers. Likewise, the same type of lamp is used to indicate the position of switch 7.

Levers 9 and 10 control the dwarfs leading off the passing track, while signals 10 and 12 control train movements into the next block to Shearwood and are controlled by traffic-direction locking in conjunction with the dispatcher at Trenton. The lever at the lower left of the board is the check-lock lever, which must be set in co-ordination with the traffic-direction lock lever at Trenton before signals can be cleared for either direction between Shearwood and Lock Springs. The control circuits for the Lock Springs plant are basically the same as for an automatic interlocking, lever control of signals being injected therein.

Power Supply System

The power supply is of the a-c. floating type. The 550-volt 60-cycle line feed is carried on two No. 6 copper wires, with weather-proof insulation, on porcelain insulators. General Electric Type-TC air-cooled 575/115-volt distribution transformers are mounted on the crossarm and are protected by G. E. compression-chamber arresters, and the feed circuit to the primary is broken through porcelain plug-type fused cut-outs. The line transformers are of several different capacities, varying from 75 v.a. to 500 v.a., with the load at the respective locations. The 115-volt a-c. circuit is extended from the line transformer to the relay case where a double-pole knife-switch with cartridge fuses is connected into the circuit feeding the rectifier and light transformer, where used. At each layout involving a power switch, a set of 12 Exide DMGO-9 cells is used for operating the switch, line controls, etc., while at each automatic signal location there is a battery of

five Exide DMGO-7 cells. The storage cells used on track circuits are Exide DMGO-9 and Edison BH4.

As this installation is in service on a new section of railroad, there is no way to determine the economic benefits derived from the centralized traffic control facilities. However, even with the comparatively light traffic prevailing at present, the advantages of the signal facilities are readily apparent. Furthermore, as mentioned previously, the centralized control was the major factor in deferring indefinitely an expenditure for a second track and for heavier bridges between Lake and Hickory Creek.

Electric Rolling Stock for Spain

American equipment to be used on Spanish built locomotives for Bilbao-Portugalete electrification

By R. D. Brackett

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THE Bilbao-Portugalete Railway, a steam railway in the northern part of Spain, extends from the city of Bilbao, on the Nervion river, northwest to Portugalete, a seaport on the Bay of Biscay at the mouth of the same river. The main line, which is being electrified, consists of double track with a route length of approximately 7.4 miles, and in general follows the course of the river, as shown on the map. A branch line of about two miles, from Bilbao south and west to Olaveaga where it joins the main line, also will be electrified. Other towns on the main line are Zorroza, Luchana, Desierto and Sestao.

Bilbao, with a population of about 120,000, is one of the principal industrial cities of Spain. The railway performs a heavy suburban-passenger service, and transports iron ore from the mines near Bilbao to ships at docks along the river. Incidental freight is also handled.

The country is rolling, and the railway has a maximum grade of about 1.2 per cent. Practically all of the road is double-track, but it is planned to install a third track later between Olaveaga and Luchana. The track gage is 66 in., the same as the Spanish Northern Railway, and freight cars are transferred to and from that road. Passenger cars are not interchanged.

The electrification program now being carried out includes one mercury-arc rectifier substation to furnish direct current at 1,650 volts, four sectionalizing and paralleling stations, an overhead contact-wire system of simple catenary construction, and new rolling stock consisting of eight passenger motor-cars, three freight motor-cars, and five freight locomotives. The passenger service will be performed by four-car trains, each made up of one passenger motor-car hauling one first-class and two second-class trailcars. Twenty-one of the present passenger cars will be equipped for trailer operation, seven of them having a motorman's control cab at one end so that the four-car trains may be operated in either direction without changing the train make-up. This provides for a total of seven passenger trains, each with four cars, with an additional motor-car available as a spare.

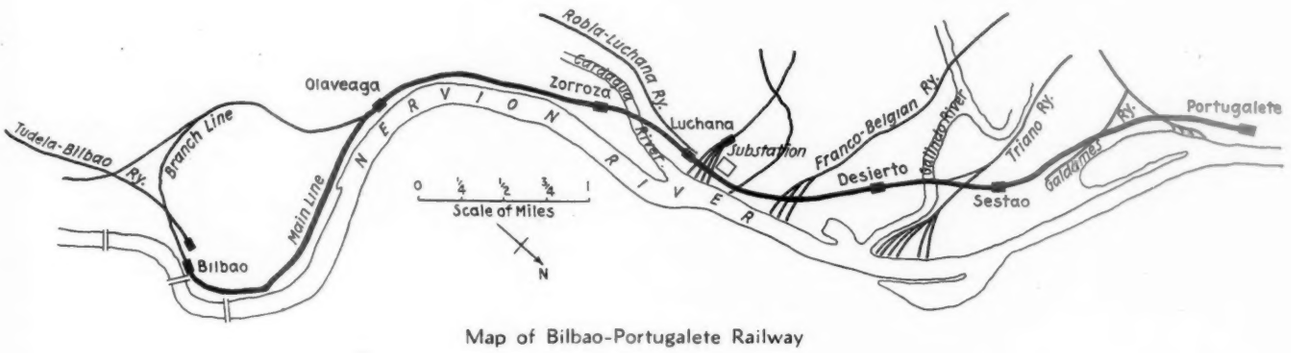
The substation is located near the passenger station at Luchana, which is about half-way between the two ends of the line. The railway specifications call for three mercury-arc rectifier equipments, each of 825 kw., capacity. Two of the rectifier units will take care of present power requirements, leaving one unit in reserve.

Power is supplied to the substation by two independent incoming lines at 3,000 volts, three-phase, 50 cycles. The switch gear is manual, with electrically-operated oil circuit breakers, and is arranged so that any main transformer may be connected to either one of the two incoming lines by means of duplicate buses. High-speed circuit breakers are specified for the protection of the direct-current feeders, as well as for the rectifiers.

Sectionalizing and paralleling stations, located near the railway stations at Olaveaga, Zorroza, Desierto and Portugalete, are arranged to permit isolating the station tracks from the general tracks.

The eight passenger motor-cars are of the double-truck, four-motor type, with a motor geared directly to each axle. The two motors on each truck are connected permanently in series for operation at 1,650 volts direct-current, or 825 volts per motor.

The double-end control equipments are of the electro-pneumatic type. The control is arranged for either



Map of Bilbao-Portugalete Railway

automatic or non-automatic operation. Normal acceleration will be from about 0.9 to 1.0 miles per hour per second when on automatic operation. The maximum acceleration on level track will be 1.3 miles per hour per second and the maximum speed in service 37.2 miles an hour, although the passenger cars are to be capable of running 43.5 miles an hour. It is specified that the weight of the motor-car fully equipped, but without passenger load, will not exceed 115,000 lb. Each trail car weighs about 77,000 lb. with passenger load. It is also specified that successful operation of all equipments must be obtained within a range of contact line voltage of from 1,150 to 1,820 volts.

The three freight motor-cars are similar to the passenger motor-cars except that they are equipped with only two motors per car, connected permanently in series. Each of the two trucks carries one motor. Since only a series connection is possible, three running speeds are obtained by providing two reduced-field operating points. Electric braking is not required.

Each freight motor-car is to be capable of hauling a train of freight cars weighing 220,500 lb. over the entire line at variable speeds between 18.6 and 27.9 miles an hour, and must be able to run 43.5 miles an hour without danger. The freight carrying capacity of each car is to be at least 33,070 lb. Multiple-unit operation is not required for either the passenger or freight-motor-cars.

Locomotives for Freight Service

The five freight locomotives are type B + B units. The cabs and mechanical parts were built in Spain, but practically all of the electrical equipments were manufactured in the United States by the General Electric Company. Each of these locomotives, weighing 150,000 lb. with all of the weight on the drivers, will develop continuously a tractive force of 26,500 lb. at the wheel rims, at 15.5 miles an hour and 1,500 volts. A maximum safe speed of 43.5 miles an hour is specified. The two four-wheel trucks are articulated and support the draw and buffer gear, so that none of the tractive force is transmitted by the cab platform. The cab is of the box type, with an operating compartment at each end, and separate compartments for the high voltage apparatus.

Each locomotive is equipped with four direct-current railway motors, connected two in series for 1,650 volts. Each motor, of the box-frame, nose-suspended type, is mounted upon an axle by means of easily renewable bronze axle bearing linings, and is supported on the truck transom by coil springs. The gearing consists of a 19-tooth pinion on the armature shaft, and an 88-tooth gear mounted directly upon the axle, and is of special heat-treated steel. The gear covers are fabricated from steel plate and welded.

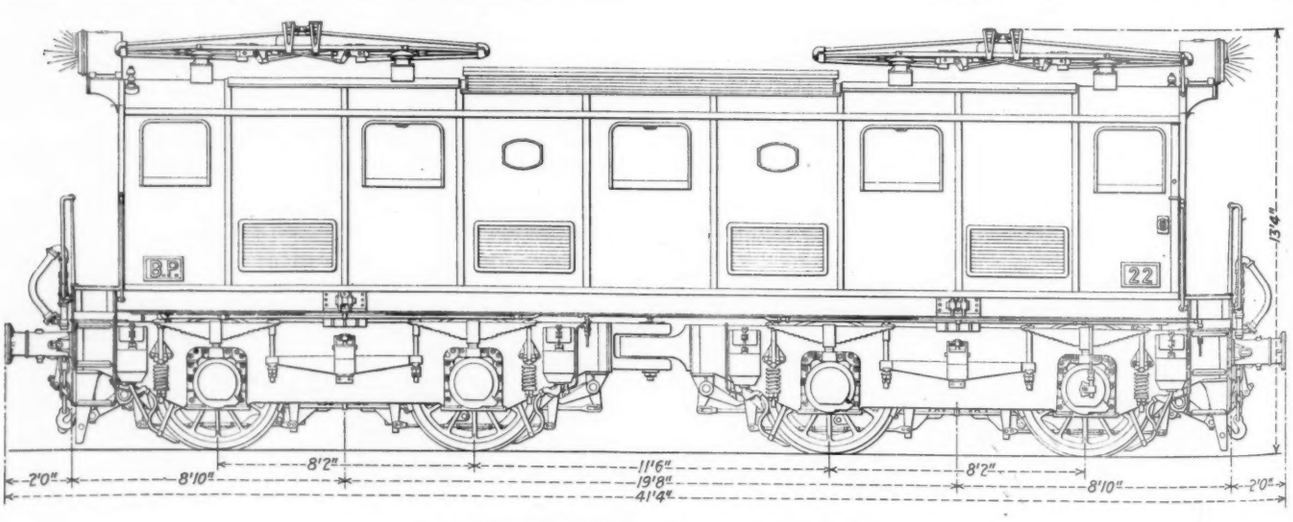
The motor has four main poles and four commutating poles. On these locomotives, each motor is blown with 1,900 cubic feet of air per minute. The air from the external blower set enters the motor through an opening in the commutator cover and passes through ducts in the armature core and over the commutator, brushes, armature and field coils to the pinion-end, where it leaves the motor through protected openings in the frame and pinion-end framehead.

The motor armature and field coils are insulated with fire-proof insulation consisting of mica and asbestos. At 750 volts, and blown with 1,900 cubic feet of air per minute, the motor has an hourly rating at 471 r.p.m. of 311 metric h.p. (307 h.p.) at the shaft, based on 110 degrees centigrade rise by resistance, and a continuous rating at 484 r.p.m. of 288 metric h.p. at the shaft based on 100 degrees centigrade rise by resistance. The weight of the motor, complete with gear, pinion, gear cover, and axle bearing linings, is approximately 8,400 lb. The armature bearings are of the roller type, lubricated by grease applied through grease fittings. The axle bearings are of the waste-packed type, with the waste saturated in oil.

The type PCL single-unit, double-end control equipment provides nine resistance steps and one full-field running step with all four motors in series, seven resistance steps and one full-field running step with two parallel groups of two motors in series, and one reduced-field running step with two parallel groups of two motors in series. The reduced-field step is obtained by shunting the motor series fields with inductive shunts to approximately 75 per cent of full field strength.

The master controllers, one at each end of the locomotive, control the direction of the locomotive and the connection and field strength of the motors. They consist of the main operating handle, the reverse handle, and a number of cam-operated, hinged-type contacts connected in the control circuits. These contacts operate the air-operated main contactors by means of magnet valves. Compressed air for the operation of these contactors, the reverser, the high-speed circuit breaker, whistles, sanders and pantographs is furnished by a 65-volt, motor-driven air compressor which has a piston displacement of 25 cubic feet of air per minute.

The locomotives are equipped with vacuum brakes in



Locomotive Outline Showing Articulated Trucks

accordance with the railway company's standards. A 65-volt motor-driven exhauster with a piston displacement of 81 cubic feet of air per minute is installed on each locomotive. The freight cars do not have air brakes, so the exhauster is required only for the brakes on the locomotive.

Power at 65 volts direct-current is obtained by means of a motor-generator set in connection with a 28-cell lead storage battery and a carbon-pile voltage regulator. The motor-generator set is of compact design and consists of a 1,500-volt. commutating-pole, compound-wound motor and a 10-kw., 65-volt, shunt-wound generator mounted on the same shaft and in the same frame. There are two bearings, one ball type and one roller type, with grease lubrication. The set is self-ventilated. It weighs approximately 2,535 lb. It is specified that the storage battery must be large enough to run the locomotive auxiliaries for one hour without the motor-generator set.

Two blower sets are installed in the locomotive cab, one set above each pair of traction motors, to furnish the ventilating air required for the motors. Each blower set consists of a 5-h.p., 1,650-r.p.m., 825-volt, series-wound motor with ball bearings and extended shaft, direct-connected to a single-width, single-inlet fan with steel housing. The air from each fan, first delivered to an air chamber on the cab platform, passes to the two traction motors through two flexible ducts, one for each motor. The weight of each blower set is approximately 550 lb.

In addition to the principal parts of the equipments already described, the locomotives are complete in all details, including a high-speed voltage relay to protect the motor-generator set; overload, reverse current, over-voltage, and under-voltage relays; ammeter and ampere-hour meter for battery charging; aluminum-cell lightning arrester; and all necessary switches, contactors, resistors and fuses. Each motorman's compartment is provided with an ammeter, voltmeter, gage panel, heaters, and control switches.

Canada's Transport Body Urges Motor Regulation

Favors Dominion licensing, uniform accounting, rate control, minimum wage, taxation to cover two-thirds of road costs in cities and larger ratio in rural areas

WARM criticism of the Canadian Pacific and Canadian National for lack of co-operation, both in the building of branch lines and of ancillary services, such as hotels and certain steamship lines, together with a thorough discussion of the question of motor competition and the submission of a plan for dealing with it, are included in the report of the Canadian Royal Commission on Transport, which was tabled in the House of Commons at Ottawa last week by Premier R. B. Bennett. Other features of the report were outlined in the *Railway Age* of October 1.

The Commission holds that one-third of the branch line construction of the two railways and over $50,000,000 could have been saved by co-operation between the companies. It brands the hotel construction by the two roads as "a deplorable example of wasteful expenditure of public and private money." It roundly scores the "Tri-City" steamship service between Vancouver, Victoria and Seattle, established by the Canadian National Steamships and which was abandoned over a year ago. It contends that the capital liabilities of the Canadian National "should be heavily written down," but it adds that "the time is not opportune to deal with this important matter."

Extreme care is urged by the Commission in any policy of abandonment of existing lines by the two railways so that no injustice or inconvenience be caused to any community. There is a lengthy enumeration of what the commission regards as "wasteful practices" in connection with the passenger services, extending from luxurious cars to needless duplication of ticket selling agencies. It is suggested, in dealing with the question of passes or free transportation, that to the extent that the railways are obliged to furnish this to members of the federal Parliament or provincial legislatures, and their dependents or for civil servants and dependents the government should bear the cost of the service involved.

The commission charges political influence in the management and administration of the Canadian National. While it absolves ministers and members of Parliament from blame, it says: "It was in the larger sphere of policy that political considerations led to unwise and unnecessary capital expenditures, the result of which was to create an atmosphere in which the ordinary principles of commercial operation of the railway were lost sight of."

Endangers Rate Structure

Through its treatment of highway competition the Commission makes it plain that this form of transport is needed by trade and industry, but that its service can be vastly enhanced by regulation and control. It strongly condemns unfair and unregulated competition between railways and road operators which has resulted in "waste and duplication of effort."

"If the railways," says the report, "lose a large part of their profitable short distance traffic to the roads a readjustment of the whole freight rate structure may be necessary, with a possible increase in the rates charged for the long distance and heavy freight traffic."

While the Commission repeats that it is opposed to undue restrictions, it makes it plain that removal of the

unfair competition between motor transport and the steam railways is essential to both and it has this to say: "Because they are essential and because the railway freight rate structure implies conditions approximating to a quasi-monopoly the railways require, if they are to continue to operate efficiently, a measure of protection from long distance road competition and an equalization of the conditions under which short distance traffic is carried." It declares, moreover, that "the true function of road transport would appear as auxiliary and complementary to the steam railways."

It is pointed out that regulation of highway transport falls within the exclusive jurisdiction of the provinces and for that reason the Commission did not feel free to make specific recommendations although it urges that the federal and provincial authorities should together examine the whole question of the regulation and taxation of road vehicles so that there might be reached "a measure of agreement upon the general principles which should govern the regulation and taxation of motor vehicles using the public highways. The administration and adaptation from time to time of the agreed principles of road transport might be left to a consultative committee consisting of representatives of the various provincial governments and of the federal government."

A Program for Regulation

Specifying the lines along which the regulation of common and contract motor carriers should proceed the Commission enumerates as follows: "1. Schedules of rates and charges should be published; 2. Within those schedules common carriers of freight should accept and carry what is offered to them without discrimination between customers and commodities; 3. Operators should be insured against all risks, including third party risks; 4. Operators should keep accounts on a prescribed system and render returns to the appropriate public authority on a common basis; 5. Minimum standards in regard to working conditions, including wages and hours of labor, should be required; 6. In the interests of the safety of the public a standard of fitness should be required in regard to their vehicles; 7. Due regard should be had to the preservation of road surfaces, and to this end restrictions should be imposed upon the size and weight of road vehicles in accordance with the type and character of the highway." The Commission also recommends licensing by the Dominion as well as by the provincial governments, such licenses to be granted to common carriers only if public interest can be moved.

On the question of taxation the Commission declares that the amount of such taxation, including the tax on gasoline should reflect a fair proportion of the cost of providing and maintaining the highways, which the Commission believes should be two-thirds of the total cost of highways in urban centers, while in the more undeveloped districts the proportion might be increased. As to distribution of the taxation over classes of vehicles the Commission suggests that the heavier burden should fall upon the heavy, long distance traffic.

Water Competition Not Feared

Turning to water transport, the Commission dismisses the contention that construction of canals free of toll to water carriers is a subsidy by simply stating that the railways in their testimony failed to make such a complaint. It sees little peril to Eastern and Western ports in the Hudson Bay route and does not think it probable that the St. Lawrence seaway project will "seriously prejudice" the position of the railways.

It is admitted by the Commission that the question of freight rates is "difficult and complex." While reluctant to pass any opinion on the subject, the Commission declares that "even under more favorable circumstances the financial position of the railways may be such as to demand that the whole question of tariffs and tolls, in its widest sense, should be the subject of special investigation, with a view to determining whether or not the existing tariffs and tolls charged for the conveyance of freight are just and reasonable both to the railways and their customers. In determining what is fair and reasonable to the railways regard should be had to the cost of providing these services."

Some attention is paid to the probable future growth of competition from aviation, gratification is expressed at the harmonious manner in which the railway managements have been able to effect reductions in wages and salaries and the report concludes with a tribute to the three secretaries of the Commission.

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The Seaboard Air Line's Appomattox River Bridge, Petersburg, Va.

This concrete and steel bridge, which was put in service on February 2, 1931, replaces an old timber and steel structure. Although the former bridge had considerable curvature, the new one is tangent, except for end connections with the existing main line. The total length of the steelwork is about 2,500 ft., and the over-all length, including approaches, is approximately 3,000 ft. Foundations were installed by the Cornell-Young Company, Macon, Ga., and steel was erected by the American Bridge Company, all work being carried out under the supervision of W. D. Faucette, chief engineer, and of E. A. Frink and J. B. McClain, bridge department, Seaboard Air Line.

Motor Transport Section

Reading Expands Motor Truck Routes

Highway freight service, both common carrier and train-substitution, made available almost throughout railway territory

FOLLOWING the same policy of aggressive expansion which has marked its operation of motor coaches from the outset, the Reading Transportation Company, highway subsidiary of the Reading, has pushed its common carrier and train-replacement motor truck operations almost throughout the territory served by the railway. A year ago, the transportation company was operating only two motor truck lines in replacement of train service, these having an aggregate length of less than 100 miles. At the present time it has six common carrier, inter-city truck routes, totaling 560 miles in length, and, in addition, seven train substitution routes, aggregating 303 miles in length, a total of 863 miles of motor truck routes of the two types. Furthermore, the company now proposes the establishment of additional common carrier lines to the north and west of Philadelphia, Pa., which will add substantially to the size of its system and bring it even closer to the point where it will blanket the region served by the parent railway.

In the operation of its truck lines, the Reading has had two purposes. One has been to replace freight train service with motor truck service where, by this means, operating expenses could be reduced and the service to patrons improved. Under this plan, train replacement motor trucks are operated to and from concentration points on the railway. Freight is moved by train between these concentration points and points of distribution on night schedules, and is delivered by truck to the outlying stations on the following mornings. The trucks engaged in this class of work run merely from station to station and do not perform pick-up and delivery service at the doors of shippers and consignees, but they do facilitate the movement of freight and they enable substantial savings to be made in operating expenses.

Routes Operated

At the present time, the transportation company is operating seven of these train-replacement routes, as follows:

Train Replacement Routes

Route	Length
Reading-Bridgeport	55.6 miles
Pottsville-Reading	51.4 "
Shamokin-Tamaqua	51.4 "
Lansdale-Hellertown	36.6 "
Doylestown-Glenside	35.1 "
Fern Rock-Yardley	35.5 "
Trenton-Weston	37.2 "
Total	302.8 miles

Tractors and Semi-Trailers Make Up the Greater Part of the Reading Transportation Company Freight-Carrying Fleet

Trucks Are Used in Replacement of Train Service on Several Routes

The second type of motor truck service offered by the transportation company is the inter-city common carrier transportation service, with pick-up and delivery, which it is now operating over some 560 miles of routes, both intrastate and interstate. The two interstate routes of this type are those between Philadelphia, Trenton, N. J., and New York, a distance of 107 miles, and between Harrisburg, Pa., Allentown and New York, a distance of 185 miles. These two routes, which parallel the railway lines of the Central of New Jersey as well as the Reading, are operated in conjunction with the Jersey Central Transportation Company, a subsidiary of the Central of New Jersey, all operating matters being handled for the Jersey Central Transportation Company by the Reading Transportation Company. Being of an interstate character, no operating certificates are required on these lines.

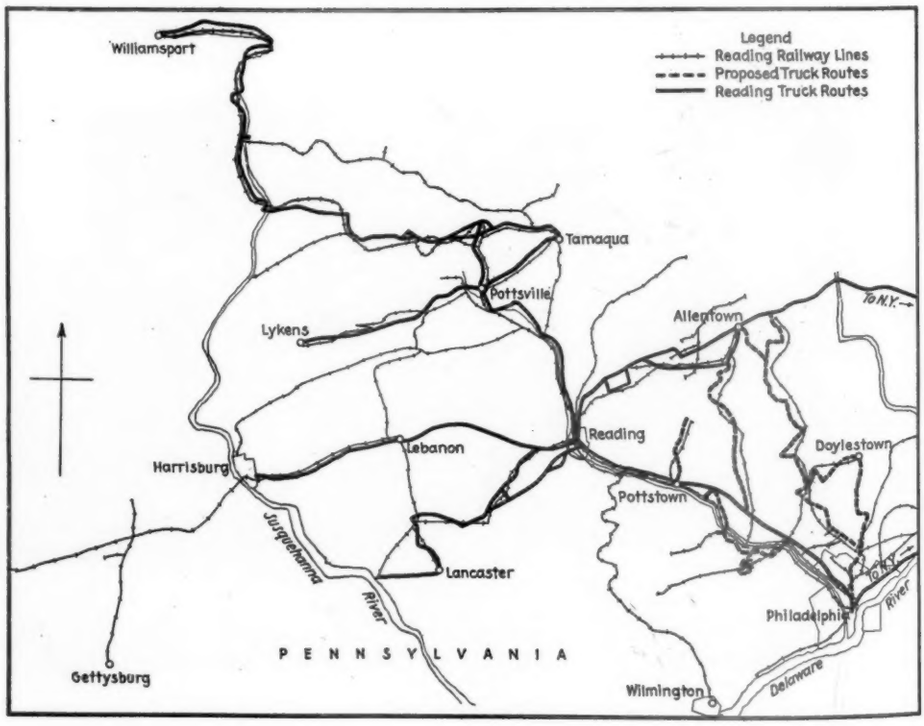
The intrastate truck lines operated by the Reading Transportation Company in Pennsylvania are as follows: Philadelphia, Reading and Pottsville, 90.9 miles; Pottsville-Lykens, 30.7 miles; Pottsville, Shenandoah, Williamsport and Newberry, 102.5 miles; and Reading and Columbia, 43.9 miles. The transportation company holds certificates from the Pennsylvania Public Service Commission permitting the operation of common carrier service on all of these lines.

The Reading operates its common carrier motor truck routes because it recognizes a demand on the part of shippers for the type of transportation service which trucks can offer when operated by a dependable organization. Essentially, the principal feature which the company offers is speed in transit, with late pick-up service one day and early delivery the following morning. The company has found that many of the shippers from whom it is securing business cannot continue to exist without this fast, regular transportation. Part of the business currently being handled by the transportation company is traffic which was formerly carried by railway and which was later handled by independent truck lines, but a substantial portion is the traffic which has come into existence only because of the availability of the sort of fast transportation service which is being offered by the Reading.

Rates and Regulations

The transportation company does not depend, for the traffic which it handles, upon indiscriminate rate cutting. Its published tariffs, on file with the Pennsylvania Public Service Commission, show class rates based upon railroad station-to-station rates, with an additional charge for the pick-up and delivery service which is rendered. When circumstances arise which make some rate reduction necessary to meet a specific situation, this reduction is accomplished in accordance with law by the replacement of class rates with commodity rates.

With respect to its rule and regulations, the transportation company conforms to the standards of other responsible truck-operating organizations. Its packing requirements are simple, these providing merely that shipments must be properly packed, boxed or crated so as to withstand the ordinary hazards of motor transportation. C.O.D. shipments are accepted under certain circumstances at a small additional charge. Other rules pertaining to minimum charges, free time and storage, bills of lading, inspection, claims, and so on,



During the Past Year, the Reading Transportation Company Has Extended Its Motor Truck Routes Until They Now Parallel a Substantial Proportion of the Reading Railway Lines

conform to railroad practice. These rules and regulations have been found adequate from the standpoint of the transportation company and satisfactory to shippers and consignees.

Equipment Operated

The present trucking operations of the transportation company require the ownership of 39 motor trucks, tractors and semi-trailers. In addition, the company contracts with local truckers for pick-up and delivery service at some points, notably New York and Philadelphia. For the heavier types of service, the transportation company employs 10 tractors and 15 10-ton semi-trailers. Its fleet of motor trucks includes two 10-ton trucks, ten 5-ton trucks and 2 1½-ton trucks. The heavier units accomplish the over-the-road movements, while lighter trucks handle the pick-up and delivery work, whole trailer-loads or truckloads of freight consigned to different consignees being unloaded at concentration points and reloaded for delivery into smaller units. The principal concentration points are Philadelphia and Reading, from which radiate the various routes covered by the transportation company's trucks. At these points, the peak of activity is reached late at night and early in the morning, the first when local pick-up trucks are arriving with out-bound shipments to be transferred to line-haul trucks, and the second when arriving line-haul trucks are being unloaded and their contents distributed among the smaller units for local deliveries.

The operating set-up enables the servicing of all equipment in two major garages, located in Philadelphia and Reading. The maintenance plan provides for a unit overhaul program, but due to the newness of the equipment conclusions have not been reached as to definite mileages between over-hauls. It is expected, however, that the major portion of the truck equipment will require a general over-haul after 60,000 to 70,000 miles of service. All the trucking equipment is pooled, and complete records of the service of each piece of equipment have to be maintained. These are based in part upon the defect cards which each truck operator is required to turn in at the garage at the end of each day. Records of daily performance kept by the maintenance forces, and a special service record showing the history of inspections and repairs to each unit, give the maintenance department a complete picture of the service and condition of each piece of equipment at all times.

Results of Operations

Although the exact results of the motor truck operations of the transportation company cannot be told at this time, it is known that they have not been unsuccessful. The train replacement lines, in addition to improving the service offered to patrons, are saving the railway substantial sums annually in train operating expenses. The common carrier lines have enjoyed a large and increasing volume of traffic, the greater part of which—if not all—would have moved by independent trucks if those of the transportation company had not been in service. The company is committed to a policy of co-ordinating train and truck service wherever this is possible, to the end not only that service may be improved, but also that the expense of intercity movement, relatively high in the case of straight truck hauls, may be reduced. To the extent that train and truck operations have been co-ordinated thus far, this plan of operation has proved advantageous, and the company expects to develop the co-ordination of its services still further.

Bendix-Westinghouse Has Seven New Products

SEVEN new products recently placed on the market by the Bendix-Westinghouse Air Brake Company, Pittsburgh, Pa., are the Bendix-Westinghouse air clutch control, a special emergency brake equipment, an improved air horn, a low-pressure indicator for application to the air-brake system, a trailer control valve, a stop-light switch and an air buzzer system.

The air clutch control is designed to eliminate muscular effort in clutch operation resulting from the use of the heavier clutch in conjunction with new high-power engines. The air clutch control also eliminates the linkage problem between the pedal and the clutch throw-out shaft, gives the operator more leg room by permitting pedal travel to be reduced to as little as four inches, and maintains the same degree of control as the conventional mechanical hook-up. The air clutch control valve may be operated directly through the conventional clutch pedal, while the chamber operating the throw-out shaft may be mounted directly on the clutch housing. Although primarily designed and recommended for factory installation, the air clutch control is also available for field installation through distributors of the Bendix-Westinghouse Company.

Consisting of a unique arrangement of the air brake system, the new special emergency brake equipment is entirely automatic in its function and is designed especially for use where heavy-duty highway transportation requires more than normal braking protection. Independent of any action on the part of the driver, this special emergency equipment is designed to produce an automatic emergency application of the brakes if, for any reason, a break in the tubing or the hose connections from the truck frame to the front or rear brake chambers should occur. The emergency equipment will give an automatic emergency brake application on the truck or trailer, or both, in the event of line breakage such as might result from collision or other causes.

The low-pressure indicator is entirely automatic, and warns the operator if, for any reason, an abnormal depletion of pneumatic pressure in the braking system should occur. Normally set to operate, should line pressures be reduced to fifty pounds, a point which still leaves a sufficient margin of safety, its warning is instantaneous. Although a buzzer in the cab is considered the standard signal for use with this device, a flasher light on the dash may be substituted, or a combination of both used. Operation of the low pressure indicator is independent of the conventional dash air gauge which gives constant visible indication of the pressure in the braking system. The device consists of a compact unit which may be readily installed at the factory or on air-braked vehicles already in service.

The recently developed hand-operated trailer control valve is said to offer distinct advantages to the operator of heavy-duty highway trains. This valve permits the operator to keep his train stretched during service brake applications and eliminates the possibility of jackknifing due to possible trailer run-ins. The trailer control valve is designed for cab mounting and functions independently of the truck brakes and the conventional foot brake valve, although interfering in no way with their normal operation.

The new stop-light switch, for use in conjunction with the air brake system, is sensitive to even the slightest

air pressures and is set for positive operation at the instant of brake application. Slightly larger than a pocket watch, this air stop-light switch features easy installation on air braked vehicles, either at the factory or in the field.

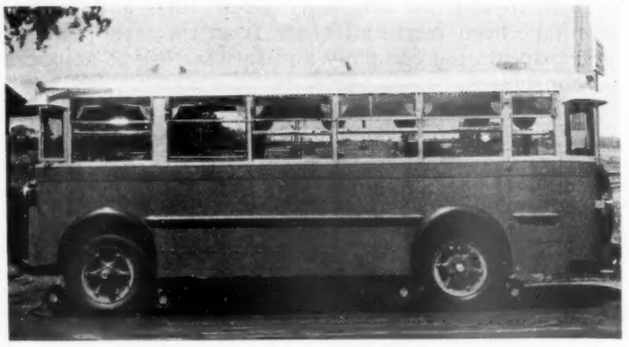
The air buzzer is a recent development in passenger-to-driver signaling systems. This device is designed especially to relieve over-loaded electrical systems, and requires an insignificant amount of air pressure to insure its normal function. The air buzzer adapts itself to the conventional cord or chain system of passenger control and is easily adapted to any coach having an available pneumatic source, such as the air brake system affords.

The improved air horn is said to number among its advantages exceptionally low air consumption, less weight, durability and compactness. The horn features a distinctive chime note of clarity and penetrating ability. Of the diaphragm type, its operating mechanism is enclosed in a cast housing to provide uniformity of tone and volume under varying atmospheric conditions and regardless of the vehicle speed. The horn is especially designed for motor coach and truck service and may be installed wherever a pneumatic source, such as the air brake system affords, is available. With a black enameled base, the horn is furnished with two chromium-plated instrument bells. For field installation, the sale of this horn is being handled only through the Bendix-Westinghouse distributing organization.

Twin Coach Designs Highway-Rail Combination

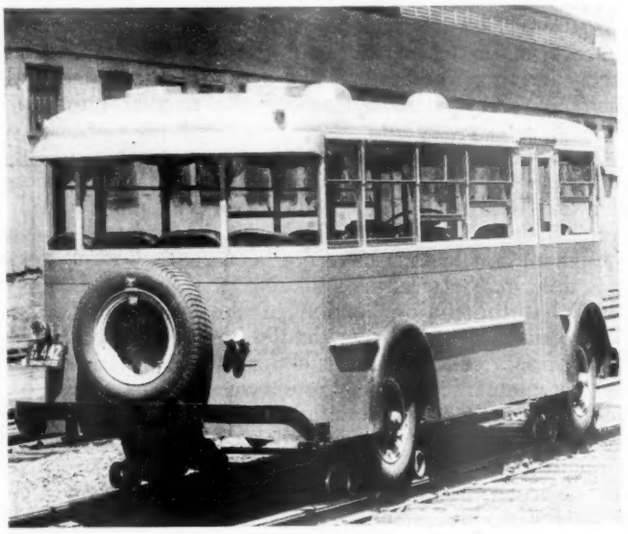
A COMBINATION highway-rail motor vehicle capable of being operated on the highways as an ordinary motor vehicle or on railway lines as a pneumatic-tired rail car, with provision for simple and quick conversion of the unit from one type of vehicle to the other, has been developed by the Twin Coach Corporation, Kent, Ohio. During recent months it has been tested on several railway lines in the vicinity of Kent, and more recently it was exhibited to a large number of railway officers at Chicago, including a committee of officers of the Motor Transport Division of the American Railway Association.

The combination vehicle consists of a standard Model 15 Twin Coach equipped with attachments by means of which the car is held on the rails while in service as a rail car. It is a 15-passenger semi-parlor car, 19 ft. 5 in. long and weighing approximately 7,000 lb. with the rail attachments. It is powered with a 73-hp. Hercules engine and has 4-wheel hydraulic brakes. Except for the rail attachments, the coach is a standard model in



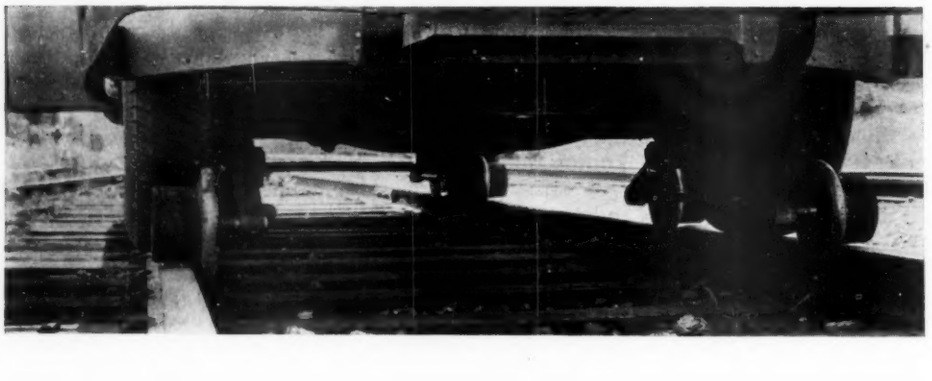
The Twin Coach Ready for Highway Service with Flanged Wheels Raised

every respect. The attachments by means of which operation of the car on rails is made possible consist of pairs of adjustable arms extending from the steering knuckles or brake mounts of the standard vehicle. These arms extend fore and aft of the center of the wheel and each is fitted with a rubber insulated small flanged wheel. These flanged wheels are raised about 4 in. off the ground while the vehicle is being operated



The Model 15 Twin Coach as a Rail Car, with Flanged Guide Wheels Lowered

on the highway, and are lowered to within ¼ in. of the rail when the car is operating as a rail vehicle. While on the rails, the flanges serve to guide the front wheels through the ordinary steering knuckles. This guiding of the front wheels, instead of locking them rigidly, makes the vehicle operate on rails very much as it does on the highway; namely, without quick side thrusts or side bumping. While in operation, the face of each guide wheel is about ¼ in. off the rail, so that only the



Close-up View of Attachments Which Hold Car on Rails

flanges touch occasionally. In case of sudden deflation of the tire, the vehicle would drop only ¼ in. and the faces of the flanged wheels would then carry the load. The rail attachment, as at present developed, is equipped with a manually-operated raising and lowering device, and it requires from 2 to 3 min. to convert the vehicle from a highway motor coach to a rail car or vice versa. It is held to be readily possible to apply air or hydraulic controls to the rail attachments so that they can be manipulated from the driver's seat.

The combination Twin Coach is proposed as a means of co-ordinating railway and highway service, with the vehicle to be operated as a highway unit for pick-up and delivery service and as a rail car for intercity runs. It is held to be suitable for immediate use on many branch lines to handle freight, passenger, mail and express traffic.

Additional capacity is possible through the coupling of several of the cars together in a train or through the hauling of a trailer.

A Successful Fight Against Truck Competition

Subsidiary of Spokane, Portland & Seattle, using "transport company" plan of operation, has made substantial headway in recovering lost traffic

By F. R. Forbes

Manager, Northwest Freight Transport Company

IN the May 23, 1931, issue of the *Railway Age,* an outline was given of the organization and purposes of the Northwest Freight Transport Company, the "transport" subsidiary of the Spokane, Portland & Seattle, and of the results of its first five months of operation. This plan has since passed the experimental stage and has been adopted by a number of other railways as a standard method of meeting truck competition.

The current month will round out two years of our existence. With due allowance for the size of this operation, it may be agreed that our experience has been a test of the pure "transport" principle. This company has not invested a dollar in operating equipment.

No additional facilities have been put into use by the railway, train service has not been expanded, and station forces have not been increased to handle our business. We have had every opportunity to make a success of this undertaking, including the wholehearted support of the railway organization. If we have not attained a greater measure of success in restoring l.c.l. tonnage to the rail line, perhaps the times are at fault and not the plan.

The operations of the Northwest Freight Transportation Company are confined to the lines and immediate territory served by its railway parent in western Oregon, a total of 300 miles of railway lines radiating from Portland, Ore., in three directions. Thus, it serves a comparatively small trade area, with Portland as the only important distributing point. The longest merchandise-car run is 123 miles.

Every community served by this company is served also by the transport subsidiary of another rail line, by highway trucks, or by steamer lines on the Willamette and Columbia rivers. One important consuming point is blessed with all four forms of service, and all points have three forms.

There have been no radical changes in our method of operation during the past two years. We contract with local draymen, any and all responsible ones, in each community, and pay them as near the going rate as possible. Our contract with the railway provides for receipt of freight from the draymen, loading cars, transportation in trains, delivery to draymen at destination, collection of freight charges, handling of claims, and accounting. Published tariff rates include pick-up and delivery within defined zones, except that some commodity rates apply without the pick-up or without the delivery feature.

Early in 1931, and for a period of about three months, competition compelled us to publish rates with an allowance of five cents per 100 lb. from the rate if shipments were delivered at our station or received at our station without using the services of our contract draymen. The allowance was made at one end only, not at both ends. So many protests were received from jobbers and wholesalers, who were compelled by their customers' orders to make free delivery to us, that we cancelled these rates. No allowance is now made to a shipper or consignee who performs his own drayage service except at one point where, to meet competition, we make an allowance of 5 cents per 100 lb. in cash and charge it to the operating account.

Neither the trailer nor the container plan for handling merchandise is suitable for this territory, since no one consignee has a sufficient amount of business due at stated periods from one shipper to justify its use or the cost of necessary special rail car equipment.

It has not been possible for us to reach out into new territory without invading that of another railway with transport service, and we are serving the same communities today that we were shortly after we commenced to operate. When we entered this field two years ago, our aim was to recover merchandise business

(*Continued on page 586*)

Operating Statistics of Large Steam Railways—Selected Items for the Month of August, 1932,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross. Excluding locomotives and tenders	Ton-miles (thousands): Net. Revenue and non-revenue	Average number of locomotives on line: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany	1932	402	106,798	110,597	7,887	2,875	67.9	146,984	48,556	66	53	44.4	22
	1931	402	137,899	144,788	10,220	3,810	66.3	198,806	66,360	81	49	37.7	27
Boston & Maine	1932	2,062	245,293	271,762	21,632	7,539	69.0	386,424	138,189	145	145	49.9	39
	1931	2,066	300,867	343,204	32,542	10,069	69.2	517,533	190,097	176	110	38.5	28
N. Y., New H. & Hart.	1932	2,050	327,018	380,034	19,972	9,338	65.4	491,540	171,774	210	139	39.9	12
	1931	2,069	426,287	500,990	28,128	13,221	64.8	713,125	263,316	243	100	29.1	20
Great Lakes Region:													
Delaware & Hudson	1932	848	184,072	238,793	23,810	5,544	60.2	340,523	147,458	255	25	8.9	168
	1931	876	247,687	316,601	34,239	7,670	60.6	476,868	212,721	242	30	11.0	127
Del., Lack. & Western	1932	998	300,525	330,989	39,615	9,138	65.7	519,623	197,934	221	52	19.2	79
	1931	998	384,812	426,257	48,231	12,667	67.2	701,511	276,050	211	60	22.0	42
Erie (inc. Chi. & Erie)	1932	2,316	644,379	674,433	39,697	24,183	59.1	1,549,129	523,142	356	146	29.1	139
	1931	2,316	727,173	756,886	57,549	31,321	60.2	1,941,857	710,609	389	109	21.9	108
Grand Trunk Western	1932	1,023	163,411	164,334	592	3,573	60.9	212,007	71,032	99	58	36.6	34
	1931	1,021	215,541	217,304	1,443	5,185	60.0	308,403	108,545	113	37	24.7	37
Lehigh Valley	1932	1,343	303,777	313,383	23,761	8,841	63.6	522,986	199,961	191	147	43.5	48
	1931	1,343	419,244	441,176	37,298	12,523	63.4	755,702	307,468	217	153	41.2	47
Michigan Central	1932	2,115	305,415	305,575	6,463	8,717	60.6	504,011	163,547	132	71	35.1	55
	1931	1,869	391,917	392,859	9,082	12,302	59.4	719,981	242,065	150	63	29.6	54
New York Central	1932	6,225	1,204,995	1,275,595	74,566	42,172	60.5	2,569,826	1,004,665	585	699	54.5	118
	1931	6,423	1,647,636	1,763,541	104,433	60,602	60.2	3,764,209	1,519,109	840	523	38.4	249
New York, Chi. & St. L.	1932	1,661	398,820	411,586	4,931	11,741	60.2	692,071	232,776	143	99	41.0	49
	1931	1,660	479,153	486,477	1,634	15,102	60.4	891,036	318,559	174	67	27.9	59
Pere Marquette	1932	2,286	254,953	257,464	2,490	5,330	58.5	346,613	132,946	127	44	26.0	32
	1931	2,241	305,837	313,895	3,258	7,369	59.8	470,516	191,906	149	29	16.1	41
Pitts. & Lake Erie	1932	235	49,035	50,540	2,013	1,941	56.4	166,408	92,113	30	54	63.8	9
	1931	235	76,201	76,326	1,259	2,874	60.2	241,021	136,178	53	24	30.9	28
Wabash	1932	2,497	460,896	466,264	7,939	12,893	63.4	728,634	235,758	204	168	45.2	40
	1931	2,497	601,835	631,149	10,962	18,829	63.1	1,082,975	368,849	255	152	37.3	63
Central Eastern Region:													
Baltimore & Ohio	1932	6,277	1,154,975	1,321,927	128,555	31,239	59.3	2,075,172	874,788	789	574	42.1	251
	1931	6,285	1,522,976	1,758,012	186,774	45,713	59.2	3,114,625	1,368,865	1,039	358	25.6	342
Big Four Lines	1932	2,790	515,556	531,187	13,381	14,660	60.6	939,900	416,921	253	174	40.7	39
	1931	2,721	622,862	643,196	16,503	19,100	61.1	1,204,667	532,281	274	157	36.4	52
Central of New Jersey	1932	692	130,841	143,538	20,294	3,862	56.6	264,274	117,914	119	59	33.0	61
	1931	692	180,168	198,734	35,630	5,344	55.7	363,683	157,901	125	58	31.7	48
Chicago & Eastern Ill.	1932	939	154,715	154,893	4,199	3,077	65.7	190,945	83,338	80	81	50.6	38
	1931	939	190,652	191,314	2,453	4,438	58.5	278,579	107,316	91	69	43.2	38
Elgin, Joliet & Eastern	1932	447	58,446	58,589	572	1,276	57.0	97,842	44,411	81	9	10.3	40
	1931	447	85,009	87,545	2,208	2,057	59.0	160,463	79,534	82	9	10.2	25
Long Island	1932	396	29,895	31,135	10,974	318	53.2	22,943	8,610	41	9	18.6	11
	1931	400	46,856	48,892	15,686	490	53.3	35,298	13,038	44	3	7.0	5
Pennsylvania System	1932	10,528	2,240,985	2,474,695	233,103	72,097	62.3	4,701,685	2,035,526	2,067	476	18.7	1,060
	1931	10,628	3,097,310	3,451,876	333,515	105,162	62.0	6,951,871	3,066,457	2,249	272	10.8	893
Reading	1932	1,453	353,022	377,672	36,008	9,014	58.4	638,352	292,621	272	120	30.6	121
	1931	1,451	470,879	510,526	48,365	12,870	57.3	939,183	429,630	320	75	18.9	88
Pocahontas Region:													
Chesapeake & Ohio	1932	3,136	721,036	750,234	22,930	29,318	54.3	2,551,828	1,375,500	547	131	19.4	286
	1931	3,110	980,555	1,033,152	37,198	39,502	54.8	3,375,625	1,818,741	614	84	12.0	262
Norfolk & Western	1932	2,258	487,627	504,951	21,629	17,377	57.7	1,412,063	724,050	421	63	13.1	213
	1931	2,272	662,084	712,974	31,711	24,232	58.3	1,999,380	1,040,289	455	38	7.7	155
Southern Region:													
Atlantic Coast Line	1932	5,144	408,366	408,601	5,699	6,918	65.4	358,455	126,226	379	93	19.8	153
	1931	5,163	499,530	501,452	7,059	9,757	62.3	526,790	183,919	389	87	18.2	106
Central of Georgia	1932	1,900	181,415	183,035	2,663	3,709	67.9	194,263	68,269	91	52	36.4	3
	1931	1,900	239,632	240,619	4,922	5,177	64.1	290,722	106,694	107	38	26.5	2
Ill. Cent. (inc. Y. & M. V.)	1932	6,658	1,165,019	1,173,480	20,392	26,206	58.0	1,769,044	704,006	711	246	25.7	92
	1931	6,670	1,544,758	1,555,454	26,419	36,000	58.2	2,446,718	932,136	724	181	20.0	58
Louisville & Nashville	1932	5,258	817,451	870,433	20,847	16,889	58.4	1,169,826	543,898	426	286	40.2	171
	1931	5,263	1,125,672	1,198,791	32,054	24,695	57.2	1,741,169	804,901	522	178	25.5	133
Seaboard Air Line	1932	4,394	369,204	372,619	3,083	7,391	62.5	411,823	139,216	250	40	13.8	77
	1931	4,466	458,878	469,009	4,620	10,692	61.7	611,779	220,944	251	31	11.0	60
Southern	1932	6,656	940,257	948,183	14,549	20,826	67.2	1,094,780	392,510	741	224	23.2	280
	1931	6,675	1,179,167	1,194,007	21,432	28,266	65.5	1,526,966	571,325	798	181	18.5	218
Northwestern Region:													
Chi. & North Western	1932	8,443	881,474	916,347	19,559	20,503	62.0	1,225,453	388,842	634	174	21.5	278
	1931	8,459	1,165,083	1,219,422	28,555	29,546	60.8	1,815,120	649,538	676	117	14.7	141
Chi. Gt. Western	1932	1,448	182,168	182,248	12,069	5,660	58.8	355,686	127,183	67	44	39.7	14
	1931	1,459	247,795	247,840	19,669	7,717	57.3	492,088	183,714	96	19	16.8	3
Chic., Milw., St. P. & Pac.	1932	11,246	1,113,340	1,166,737	55,721	26,878	59.6	1,731,859	683,441	749	155	17.1	375
	1931	11,290	1,389,106	1,484,068	72,776	36,602	59.7	2,325,481	924,677	779	140	15.2	307
Chi., St. P., Minn. & Om.	1932	1,714	221,473	229,691	9,840	4,276	65.3	260,510	110,046	141	31	17.9	69
	1931	1,714	247,322	271,051	13,024	5,206	62.3	315,856	126,804	152	21	12.3	58
Great Northern	1932	8,432	595,098	598,274	14,561	16,426	62.8	1,049,957	456,858	489	122	20.0	152
	1931	8,366	670,757	677,444	20,604	22,702	60.4	1,487,495	661,708	491	143	22.6	137
Minn., St. P. & S. St. M.	1932	4,325	350,973	354,971	1,962	6,698	64.0	388,630	161,878	147	50	25.3	14
	1931	4,329	357,955	364,011	4,331	8,391	63.7	481,170	198,787	156	53	25.2	21
Northern Pacific	1932	6,397	560,438	593,745	35,053	15,057	60.9	949,152	355,564	394	130	24.7	104
	1931	6,458	674,967	710,791	41,785	18,990	62.9	1,137,275	423,874	387	126	24.5	69
Oreg.-Wash. R. R. & Nav.	1932	2,186	147,969	151,619	7,688	3,336	66.2	193,305	74,325	100	34	25.7	43
	1931	2,218	172,243	179,298	12,429	4,612	68.7	268,666	112,215	117	14	10.5	49
Central Western Region:													
Alton	1932	951	192,236	196,950	1,112	3,967	55.6	257,997	81,655	89	38	29.7	12
	1931	1,000	219,795	232,117	2,330	5,057	55.7	335,454	136,673	99	23	18.5	16
Atch., Top. & S. Fe. (incl. P. & S. F.)	1932	11,600	1,338,259	1,424,112	54,052	35,288	60.8	2,220,753	713,763	737	194	20.9	306
	1931	11,546	1,584,026	1,689,304	70,973	47,534	60.5	3,052,581	1,101,571	739	204	21.6	213
Chi., Burl. & Quincy	1932	9,210	978,098	998,196	26,289	23,062	57.5	1,376,198	556,391	506	143	22.0	98
	1931	9,257	1,132,417	1,172,389	33,105	33,068	59.6	1,983,757	851,341	573	112	16.3	73
Chi., Rock I. & Pacific (inc. C. R. I. & G.)	1932	8,342	973,298	987,399	5,032	20,154	61.4	1,233,384	472,780	497	145	22.6	157
	1931	8,315	1,154,563	1,192,564	7,357	27,182	60.9	1,715,870	693,643	545	131	19.4	135
Denver & R. G. Wn.	1932	2,514	185,988	202,743	22,257	5,296	63.8	313,253	109,594	207	31	13.0	71
	1931	2,557	233,618	254,502	26,430	6,895	61.5	421,857	155,222	232	14	5.7	72
Los Angeles & Salt Lake	1932	1,240	133,564	145,835	13,418	3,468	67.0	205,661	79,815	79	27	25.4	19
	1931	1,241	154,558	168,965	15,739	4,302	66.4	246,594	89,843	98	15	13.2	31
Oregon Short Line	1932	2,473	211,830	217,364	9,354	5,231	63.5	301,831	107,573	153	37	19.5	78
	1931	2,532	268,978	278,735	15,893	7,473	63.5	439,507	163,025	172	7	4.0	73
So. Pacific—Pacific Lines	1932	8,911	967,405	1,028,429	95,566	27,244	60.3	1,701,391	533,270	559	332	37.2	182
	1931	8,940	1,152,485	1,234,046	129,014	34,982	62.5	2,153,211	741,346	660	276	29.5	208
Union Pacific	1932	3,768	776,195	794,974	31,722	26,427	57.4	1,643,319	495,527	383	80	17.3	191
	1931	3,768	924,458	944,539	37,719	34,795	58.5	2,138,120	685,295	401	49	10.9	155
Southwestern Region:													
Gulf, Colo. & S. Fe	1932	1,943	174,968	178,408	2,466	3,927	60.8	250,907	97,911	108	19	15.3	45
	1931	1,965	197,575	203,293	4,203	5,158	60.9	340,615	143,142	103	18	14.9	35
Mo.-Kans.-Texas Lines	1932	3,282	312,178	313,850	4,307	7,602	60.9	451,049	163,656	158	66	29.3	83
	1931	3,282	357,588	361,110	4,667	9,884	58.0	614,416	227,339	171	57	24.9	83
Missouri Pacific	1932	7,409	969,097	988,048	21,894	23,512	59.7	1,451,908	524,175	496	121	19.6	238
	1931	7,419	1,272,044	1,314,118	38,935	35,299	59.9	2,253,692	871,548	510	90	15.1	168
St. Louis-San Francisco	1932	5,193	563,068	566,869	6,074	12,077	60.2	743,940	284,460	399	81	16.9	162
	1931	5,175	669,465	675,842	9,370	15,966	59.8	985,113	378,387	386	82	17.5	105
St. Louis Southwestern Lines	1932	1,902	159,734	164,604	2,143	3,440	65.3	191,349	69,109	111	28	20.2	43
	1931	1,902	200,741	201,567	3,256	5,135	62.9	298,074	111,153	110	27	19.9	35
Texas & New Orleans	1932	4,588	429,649	430,130	4,794	7,964	59.1	485,319	159,591	228	72	23.9	66
	1931	4,687	476,887	478,172	937	10,750	61.5	665,618	255,925	218	103	32.1	43
Texas & Pacific	1932	1,946	211,316	211,316	970	5,474	65.7	333,945	113,363	154	94	37.9	42
	1931	1,946	288,955	288,955	3,508	7,463	59.3	483,491	178,305	179	60	25.1	27

Compiled by Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Compared with August, 1931, for Roads with Annual Operating Revenues Above $25,000,000

Region, road and year	Average number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive-miles per locomotive-day
New England Region:													
Boston & Albany.....1932	4,503	2,304	6,807	34.6	21,207	1,376	455	16.9	230	20.1	3,899	150	32.1
1931	3,634	2,979	6,613	12.6	22,104	1,442	481	17.4	324	28.0	5,328	151	38.5
Boston & Maine.....1932	11,380	6,201	17,581	16.1	21,464	1,587	568	18.3	256	20.2	2,180	101	32.6
1931	11,090	7,699	18,789	11.0	22,036	1,720	632	18.9	326	25.0	2,969	105	42.3
N. Y., New H. & Hart..1932	16,673	8,720	25,393	8.3	22,447	1,503	525	18.4	218	18.1	2,704	109	37.0
1931	15,692	12,066	27,758	4.5	24,154	1,673	618	19.9	306	23.7	4,105	99	49.7
Great Lakes Region:													
Delaware & Hudson.....1932	12,629	2,260	14,889	3.3	24,235	1,850	801	26.6	319	20.0	5,609	118	30.2
1931	11,483	3,586	15,069	3.9	25,363	1,925	859	27.7	455	27.1	7,836	115	41.6
Del., Lack. & Western..1932	19,818	3,182	23,000	9.0	25,029	1,729	659	21.7	278	19.5	6,397	119	43.8
1931	19,104	4,731	23,835	6.8	24,985	1,823	717	21.8	374	25.5	8,921	129	56.5
Erie (inc. Chi. & Erie)..1932	36,592	11,082	47,674	4.5	38,084	2,404	812	21.6	354	27.7	7,286	94	45.9
1931	35,335	13,264	48,599	4.2	38,834	2,670	977	22.7	472	34.6	9,899	95	52.8
Grand Trunk Western....1932	5,353	6,883	12,236	13.6	23,193	1,297	435	19.9	187	15.5	2,240	103	33.9
1931	4,899	7,800	12,699	10.2	23,769	1,431	504	20.9	276	22.0	3,428	100	47.0
Lehigh Valley.....1932	23,009	3,710	26,719	16.1	28,574	1,722	658	22.6	241	16.8	4,802	125	32.1
1931	21,992	5,286	27,278	10.0	29,480	1,803	733	24.6	364	23.3	7,386	128	41.7
Michigan Central.....1932	24,098	14,735	38,833	8.4	29,568	1,650	535	18.8	136	12.0	2,494	102	49.5
1931	24,274	16,781	41,055	6.7	33,354	1,837	617	19.7	190	16.3	4,178	99	60.7
New York Central.....1932	88,100	56,089	144,189	15.3	32,420	2,133	834	23.8	225	15.6	5,206	94	33.9
1931	78,335	64,103	142,438	12.0	33,409	2,285	922	25.1	344	22.8	7,630	93	44.2
New York, Chi. & St. L..1932	16,108	5,975	22,083	12.7	29,503	1,735	584	19.8	340	28.5	4,522	93	55.5
1931	15,611	7,953	23,564	9.9	29,431	1,860	665	21.1	436	34.2	6,190	94	65.3
Pere Marquette 1932	14,338	3,297	17,635	3.7	22,283	1,360	521	24.9	243	16.7	1,876	88	49.0
1931	12,431	4,394	16,825	3.5	23,087	1,538	627	26.0	368	23.6	2,762	86	57.6
Pitts. & Lake Erie.....1932	18,860	6,222	25,082	29.9	48,800	3,394	1,879	47.5	118	4.4	12,635	94	20.2
1931	20,001	4,841	24,842	8.2	40,467	3,163	1,787	47.4	177	6.2	18,701	89	32.6
Wabash 1932	19,677	6,430	26,107	8.7	31,100	1,581	512	18.3	291	25.1	3,046	98	41.1
1931	20,808	8,884	29,692	8.2	33,735	1,799	613	19.6	401	32.4	4,766	101	50.9
Central Eastern Region:													
Baltimore & Ohio.....1932	99,039	13,921	112,960	13.0	23,664	1,797	757	28.0	250	15.1	4,495	140	34.3
1931	94,903	21,285	116,188	8.5	26,210	2,045	899	29.9	380	21.4	7,026	132	44.9
Big Four Lines.....1932	22,928	16,832	39,760	15.8	30,143	1,823	809	28.4	338	19.6	4,820	104	41.1
1931	24,687	22,414	47,101	7.1	30,897	1,934	855	27.9	365	21.4	6,311	104	49.4
Central of New Jersey...1932	17,860	5,497	23,357	22.4	25,615	2,020	901	30.5	163	9.4	5,497	135	29.7
1931	16,876	7,426	24,302	13.9	24,985	2,019	876	29.5	210	12.7	7,358	134	41.2
Chicago & Eastern Ill....1932	6,286	1,886	8,172	15.6	20,490	1,234	539	27.1	329	18.5	2,863	127	31.9
1931	5,984	3,297	9,281	11.0	24,394	1,461	563	24.2	373	26.4	3,687	117	39.2
Elgin, Joliet & Eastern..1932	9,665	3,510	13,175	11.4	14,881	1,674	760	34.8	109	5.5	3,204	120	21.2
1931	9,451	3,555	13,006	6.0	16,301	1,888	936	38.7	197	8.6	5,739	114	31.8
Long Island 1932	793	3,289	4,082	.9	5,577	767	288	27.1	68	4.7	701	283	27.1
1931	781	4,589	5,370	.9	6,646	753	278	26.6	78	5.5	1,051	322	44.2
Pennsylvania System.....1932	254,073	44,743	298,816	7.5	29,547	2,098	908	28.2	220	12.5	6,237	120	34.4
1931	240,786	56,926	297,712	5.8	30,987	2,244	990	29.2	332	18.4	9,307	117	48.4
Reading 1932	39,575	6,114	45,689	15.7	21,933	1,808	829	32.5	207	10.9	6,495	136	34.0
1931	37,053	10,141	47,194	5.2	23,884	1,995	912	33.4	294	15.4	9,550	129	45.7
Pocahontas Region:													
Chesapeake & Ohio.....1932	47,564	7,531	55,095	2.6	48,445	3,539	1,908	46.9	805	31.6	14,150	68	36.8
1931	46,415	9,638	56,053	2.9	45,824	3,443	1,855	46.0	1,047	41.5	18,863	71	49.5
Norfolk & Western.....1932	40,774	3,481	44,255	2.3	42,505	2,896	1,485	41.7	528	21.9	10,343	104	35.1
1931	36,576	5,382	41,958	.9	43,656	3,020	1,571	42.9	800	31.9	14,770	104	48.7
Southern Region:													
Atlantic Coast Line.....1932	28,094	3,197	31,291	11.6	15,628	873	309	18.2	130	10.9	791	123	28.3
1931	26,852	4,382	31,234	6.4	17,781	1,055	368	18.8	190	16.2	1,149	117	34.5
Central of Georgia.....1932	7,755	1,543	9,298	22.2	18,712	1,071	376	18.4	237	19.0	1,159	126	41.9
1931	7,198	2,559	9,757	16.2	19,645	1,213	445	20.6	353	26.7	1,812	128	54.6
Ill. Cent. (inc. Y. & M. V.)1932	54,797	12,022	66,819	20.1	24,325	1,518	604	26.9	340	21.8	3,411	122	40.3
1931	52,634	14,068	66,702	11.9	24,904	1,584	603	25.9	451	29.9	4,508	124	56.3
Louisville & Nashville....1932	53,186	5,779	58,965	20.6	21,558	1,431	665	32.2	298	15.8	3,337	132	40.4
1931	49,794	7,909	57,703	14.6	22,789	1,547	715	32.6	450	24.1	4,933	130	56.7
Seaboard Air Line.....1932	15,725	2,933	18,658	9.9	18,087	1,115	377	18.8	241	20.4	1,022	126	41.8
1931	17,186	3,704	20,890	12.3	19,477	1,333	481	20.7	341	26.8	1,596	127	54.2
Southern 1932	56,799	7,839	64,638	14.6	19,341	1,164	417	18.8	196	15.5	1,902	141	32.2
1931	55,248	11,202	66,450	13.5	20,570	1,295	485	20.2	277	21.0	2,761	142	40.1
Northwestern Region:													
Chi. & North Western...1932	46,397	17,140	63,537	8.4	20,965	1,390	441	19.0	197	16.8	1,486	116	37.4
1931	44,558	21,671	66,229	8.7	22,189	1,558	558	22.0	316	23.7	2,477	113	50.8
Chi. Gt. Western.....1932	5,099	3,337	8,436	12.4	32,803	1,953	698	22.5	486	36.8	2,834	118	56.1
1931	4,361	4,567	8,928	8.6	32,217	1,986	741	23.8	664	48.7	4,062	118	74.8
Chi., Milw., St. P. & Pac.1932	64,255	11,757	76,012	3.5	23,757	1,556	614	25.4	290	19.1	1,960	113	43.6
1931	61,204	15,488	76,692	2.4	24,682	1,674	666	25.3	389	25.8	2,642	111	54.7
Chi., St. P., Minn. & Om.1932	2,186	7,130	9,316	9.6	16,603	1,176	497	25.7	381	22.7	2,071	107	45.1
1931	2,232	8,205	10,437	10.2	17,986	1,277	513	24.4	392	25.8	2,387	108	53.0
Great Northern 1932	44,508	9,752	54,260	4.7	25,805	1,764	768	27.8	272	15.5	1,748	111	32.4
1931	43,652	9,410	53,062	5.9	30,844	2,218	987	29.4	402	22.6	2,551	103	35.5
Minn., St. P. & S. St. M.1932	21,149	2,523	23,672	4.1	17,487	1,107	461	24.2	222	14.3	1,207	98	58.4
1931	20,798	3,567	24,365	3.8	19,728	1,344	555	23.7	263	17.5	1,481	95	56.9
Northern Pacific.....1932	44,115	4,653	48,768	10.8	26,363	1,694	634	23.6	235	16.4	1,793	132	38.7
1931	41,678	5,770	47,448	10.2	25,462	1,685	628	22.3	288	20.5	2,117	136	47.3
Ore.-Wash. R.R. & Nav..1932	9,271	2,106	11,377	10.4	20,821	1,306	502	22.3	211	14.3	1,097	139	38.3
1931	8,425	3,248	11,673	2.1	23,213	1,560	651	24.3	310	18.5	1,632	133	47.1
Central Western Region:													
Alton 1932	5,231	4,496	9,727	13.4	26,283	1,342	425	20.6	271	23.7	2,770	100	50.3
1931	10,569	3,037	13,606	9.9	27,242	1,526	622	27.0	324	21.5	4,410	115	62.0
Atch., Top. & S. Fe....1932	71,956	8,383	80,339	9.7	30,408	1,659	533	20.2	287	23.3	1,985	99	51.2
(incl. P. & S. F.) 1931	68,761	12,207	80,968	9.0	33,021	1,927	695	23.2	439	31.3	3,078	93	60.3
Chi., Burl. & Quincy....1932	45,305	12,415	57,720	8.4	22,768	1,407	569	24.1	311	22.4	1,949	113	50.9
1931	44,754	13,781	58,535	7.0	26,071	1,752	752	25.7	469	30.6	2,967	110	56.8
Chi., Rock I. & Pacific..1932	42,943	8,435	51,378	16.2	21,124	1,267	486	23.5	297	20.6	1,828	131	49.8
(incl. C. R. I. & G.) 1931	40,306	12,685	52,991	10.9	23,051	1,486	601	25.5	422	27.2	2,691	120	57.3
Denver & R. G. Wn.....1932	14,460	3,674	18,134	3.4	24,662	1,684	589	20.7	195	14.8	1,406	156	30.4
1931	13,545	4,336	17,881	2.7	25,169	1,806	664	22.5	280	20.2	1,958	152	36.9
Los Angeles & Salt Lake.1932	4,371	895	5,266	6.4	26,623	1,540	598	23.0	489	31.7	2,076	142	48.5
1931	4,475	1,052	5,527	3.7	25,191	1,595	581	20.9	524	37.8	2,336	137	53.0
Oregon Short Line.....1932	9,336	3,333	12,669	10.4	23,959	1,425	508	20.6	274	21.0	1,403	105	38.6
1931	7,953	3,687	11,640	5.3	26,034	1,634	606	21.8	452	32.6	2,077	99	52.9
So. Pacific—Pacific Lines.1932	43,322	22,257	65,579	10.8	26,891	1,759	551	19.6	262	22.2	1,931	103	40.7
1931	41,940	24,771	66,711	9.8	26,791	1,868	643	21.2	358	27.1	2,675	111	47.0
Union Pacific.....1932	25,646	8,933	34,579	15.7	44,681	2,117	638	18.8	462	43.0	4,242	102	57.6
1931	24,790	9,617	34,407	7.0	45,789	2,313	741	19.7	642	55.7	5,867	97	70.4
Southwestern Region:													
Gulf, Colo. & S. Fe.....1932	10,020	2,085	12,105	6.2	23,564	1,434	560	24.9	261	17.2	1,625	108	45.9
1931	10,618	2,452	13,070	2.5	27,979	1,724	724	27.8	353	20.9	2,350	92	55.3
Mo.-Kans.-Texas Lines...1932	12,494	2,206	14,700	4.0	24,558	1,445	524	21.5	359	27.4	1,609	85	45.8
1931	12,404	4,751	17,155	4.7	27,159	1,718	636	23.0	427	32.0	2,235	82	51.9
Missouri Pacific.....1932	30,475	12,007	42,482	13.3	25,727	1,498	541	22.3	398	29.9	2,282	125	52.8
1931	31,745	17,387	49,132	11.4	28,512	1,772	685	24.7	572	38.7	3,789	112	72.8
St. Louis-San Francisco..1932	29,054	5,083	34,137	5.9	21,553	1,321	505	23.6	269	19.0	1,767	122	38.5
1931	27,141	6,814	33,955	3.1	22,631	1,471	565	23.7	359	25.4	2,359	122	47.3
St. Louis Southwestern 1932	5,100	1,656	6,756	13.5	21,636	1,198	433	20.1	330	25.1	1,172	104	38.8
Lines 1931	6,227	3,471	9,698	8.9	24,087	1,485	554	21.6	370	27.2	1,886	99	48.2
Texas & New Orleans....1932	9,236	9,929	19,165	9.7	18,538	1,130	371	20.0	269	22.7	1,122	94	46.8
1931	12,070	11,924	23,994	7.1	20,906	1,396	537	23.8	344	23.5	1,762	93	48.2
Texas & Pacific..... 1932	6,148	3,093	9,241	12.2	24,185	1,580	536	20.7	396	29.1	1,880	83	27.7
1931	6,643	5,507	12,150	12.2	24,960	1,673	617	23.9	473	33.4	2,956	83	39.5

A Successful Fight Against Truck Competition

(*Continued from page 583*)

that was fast disappearing. We hoped that the operation of pick-up and delivery service by a railway would tend to stabilize rates. We were ready to agree that there was a place for the truck on the highway, but we did not believe that place should any longer be on the particular state highways paralleling our railway through counties where, for years, our taxes had kept up schools, built market roads and paid for the modern improvements the residents of those counties were enjoying. We have recovered a satisfactory volume of merchandise and, in so doing, have resumed business relations with hundreds of former railway patrons who had drifted away from us in recent years. We have not been particularly successful in stabilizing the rate structure. The trucks we have always with us. Occasionally some truck operation disappears from the highway, but some other optimist fills the gap.

As to our steamer line competitors, one of them is subsidized by a coastwise ocean carrier, and the other two are competing on the Columbia river with a scale of rates lower than we consider compensatory. We observe railroad rules of practice in filing our tariffs, publishing short-notice rates only by permission of the public utilities commissioner, charging for storage indiscriminately, and paying only just claims.

Character of Traffic

Outbound tonnage from Portland is made up of a general run of merchandise of every description. We count among our regular customers all but a few of the larger shippers and consignees who patronize the contract hauler exclusively on a low-bid rate. Willamette Valley canned fruits and vegetables, dried fruits, hops, wool and seeds make up a heavy tonnage to Portland for movement over docks in coast-wise, inter-coastal and foreign traffic, attracting the keenest competition in rates. Railway carload rates that moved this tonnage to the port a few years ago are now "paper" rates, without effect. A contract truck operator was hauling canned goods to Portland, at last advice, on a rate of 4½ cents per 100 pounds for a 52-mile haul; the going contract truck rate on canned goods from a distance of 100 miles is 10 cents. These rates include pick-up on the cannery floor with delivery on steamer docks. Relatively low rates on agricultural commodities apply from the field.

Within its limitations, the Northwest Freight Transport Company has attempted to adjust its rate structure to meet fair competition on volume movement of commodities, but only where the resulting net seemed to justify. Distributive rates from Portland, however, have been maintained at the approximate level where they were when the operation was started. Gross revenue per ton from these distributive rates actually shows an increase in 1932 over 1931, but this must be explained as resulting principally from a greater average of minimum shipments handled.

Volume of Traffic

For the calendar year 1931, our merchandise tonnage increased 62 per cent in volume over that handled from Portland by the rail line in the year 1930. We should handle approximately the same volume this year, notwithstanding the fact that, conservatively, there was at least 25 per cent less tonnage to move. Our gross merchandise earnings in each of the two years will be considerably greater than the railway merchandise earnings over the same route in 1930, but naturally our pick-up and delivery costs will reduce the net revenue return to the railway. There is some comfort in the understanding that, without this operation, the rail line would have enjoyed a very limited merchandise movement from Portland in either 1931 or 1932. During the past year we have been particularly fortunate in securing a fair share of the inbound tonnage of commodities to Portland in spite of the fact that this "return haul" business is very attractive to truck lines. It has given us a fairly well balanced movement and provided us also with a return load for merchandise cars.

For the year 1931, freight claims paid showed a ratio of 1.016 per cent of gross revenue. Considering the character of our tonnage and extra handling involved in our operation, this might not be considered high.

Publication of pick-up and delivery interstate rates by railways, without the intervention of a subsidiary, is a development of the past year, a "transport company" having no status as a common carrier in interstate commerce. State charters permitting, there should be nothing to prevent a railway from handling intrastate business also directly under its own tariffs if rate adjustments necessary to meet truck competition can be made without seriously affecting the entire rate structure, including carload rates, divisions and trade relationships between distributing points. Neglect of merchandise business in the past may be charged against railways, and perhaps the best argument for the use of a subsidiary is the undivided attention such a subsidiary organization can give to all phases of this particular business.

Conclusions Based on Experience

Daily contact with a small transport operation like ours over a period of two years, offers an opportunity for more or less intensive study of this method of meeting truck competition in handling merchandise by use of standard railway facilities, and compels some conclusions which may or may not be concurred in by other transport operators. If I may be permitted to offer a few of the more general of such conclusions, they might be summarized as follows:

An operation of this kind is justified if it can be performed without unreasonable expense for added facilities and extra train service.

The average shipper is still railroad-minded. How long he will continue to be so is problematical unless all his present day transportation needs can be served by the railroads. On the Pacific Coast, some jobbers receive their stocks by water and can distribute entirely by truck.

Shippers and consignees will patronize a rail operation at equal rates and service on account of the known dependability of that service, protection on claims and C.O.D. collections.

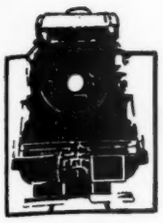
An organization that is handling a jobber's l.c.l. freight distribution satisfactorily may reasonably expect to receive his carload business.

The local contract drayman cannot be depended upon, as a rule, to originate new business, but his contact with his regular customers is of value.

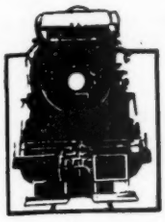
In a successful operation of this kind, it is not necessary to waive classification packing and marking requirements blindly. A very large percentage of merchandise is distributed in the original package. Classification packing requirements, however, are, to some extent, too rigid to be made to govern local shipping.

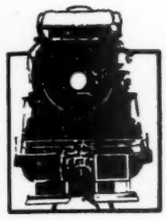
A BRONZE TABLET has been awarded by the National Safety Council to the New York, New Haven & Hartford in recognition of the safety record of its Marine Department for the first six months of 1932. The record, in which there was competition with 18 other entrants, was absolutely clear, no injuries fatal or non-fatal in the six months. The contest was among employees engaged in shipbuilding and ship repairs.

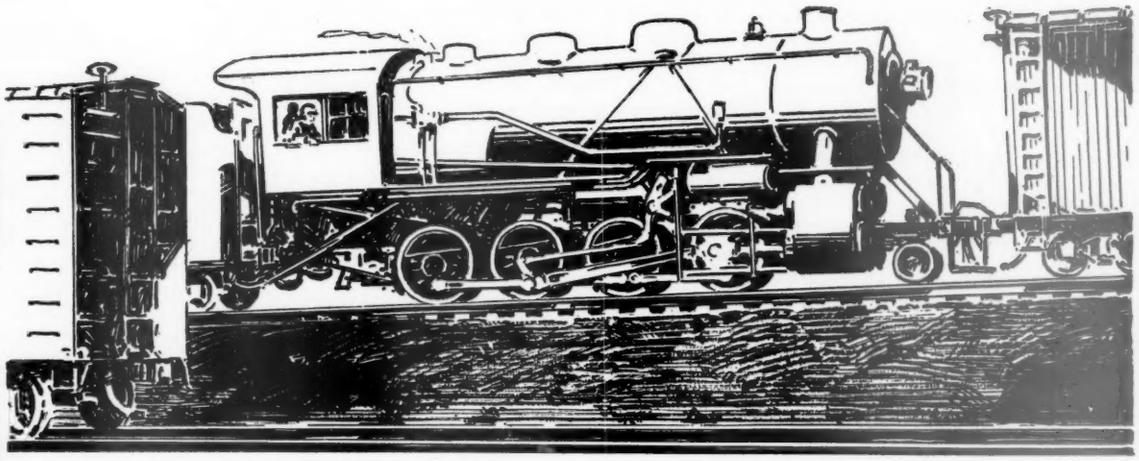
Odds and Ends appear on next left-hand page

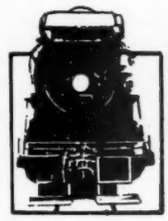


NO OLD ROAD ENGINE CAN EVER BECOME A MODERN SWITCHER

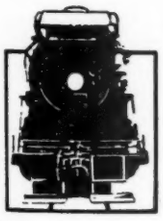




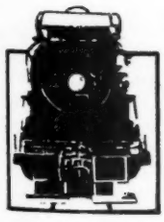




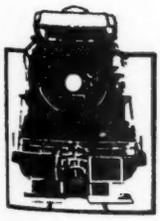
JUST designating an old road engine as a switcher does not make it suitable for switching service. Extensive rebuilding is uneconomical and wasteful since even a rebuilt road engine can't handle the cuts as snappily and as efficiently as modern railroading demands.



Then, too, most old road engines are gluttons for fuel.



Consider that a quarter of all railroad mileage is made by switch engines and the importance of operating only modern locomotives built specifically for switching service becomes apparent.



LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS, Incorporated LIMA, OHIO

Odds and Ends . . .

Watermelons Attacked

Probably no combat in history compares with a recent onslaught on watermelons which occurred at Jackson, Miss. The occasion was a "watermelon cutting" which featured a meeting of the Illinois Central Negro Booster Service Club of Jackson. After the first part of the meeting, which was held in a passenger coach and at which three white guests were speakers, adjournment was taken to the north platform of the freighthouse where a supply of watermelons awaited the 40 members.

Negro Employees Know How to Run Excursions

The Labor Day excursion that was run from Memphis, Tenn., to Mound Bayou, Miss., on September 5, under the auspices of the Illinois Central Negro Booster Club of Memphis, was a success from two points of view. It brought satisfactory revenue to the railroad, and it advertised the company throughout the Mississippi Delta. The officers of the booster club planned the affair in every detail, and the response of the excursionists was enthusiastic. At the destination, a program at the Mound Bayou College was preceded by a large parade of the excursionists.

What! No "Hearty Grips" with Enginemen!

An editorial in a recent issue of the New York Sun calls attention to the fact that both candidates for President have ridden considerable distances on railroad trains but neither has employed the brotherly gesture so essential to other national political campaigns—the "hearty grip" with the engineman. "Does this," continues the editorial, "mean that modernity has effaced another of the good old customs? If it does, literature and art are the losers. There will be no more of those fervid acknowledgements of obligation to the man in the cab who didn't intentionally wreck the train as it sped through the night from somewhere to some other where. Hygienics has banished the kissing of babies by candidates. If the engineman's hand is to remain unshaken, another link to the past is doomed."

The "Harry Texas" in Controversy

The "Harry Texas," a locomotive that helped postpone the collapse of the Confederacy by outrunning a stolen train, again plays a prominent part in another controversy. Atlanta, Ga., and the Nashville, Chattanooga & St. Louis are contending over its ownership, while the locomotive rusts in a basement. It was in April, 1862, that the "Texas" ran down the "General," a locomotive which was stolen by federal spies, and kept rail connections open between Georgia and Tennessee. The "Texas" has been stored in a basement in Atlanta and now the railroad wishes to display it in the station there, contending that when it leased the tracks over which the "Texas" and the "General" raced, it came into possession of the locomotive. Atlanta maintains that the "Texas" was given to the city by a former owner of the railroad.

Fast Work by Katy Car Department

When Missouri-Kansas-Texas train No. 73, with freight from St. Louis, Mo., to Houston, Tex., arrived at the Waco-Bellmead terminal at 10.15 a. m., on a recent date, it included in its consist a car of merchandise which was marked bad order. The car needed a new set of wheels. The car was due to reach Houston in time for Saturday morning delivery of its contents of merchandise, but it could not fulfill this schedule if it failed to go south in train No. 71, called for 12:15 p. m. that day. Here was an occasion demanding fast work, and fast work was forthcoming when the situation was explained to Car Foreman J. P. Ellis. Mr. Ellis put all of his men to work on the car after it had been switched to the rip track, and within the space of the two available hours the wheels had been changed and the car was ready to proceed, with the result that the shipments which it contained were delivered in Houston on Saturday morning instead of on Monday. And yet they say that the railroads are too wrapped up in tradition to move quickly!

The "John Stevens" Given to Museum

The Pennsylvania has given the Museum of Science and Industry, Chicago, a full-sized replica of the "John Stevens," the first steam locomotive to run on railroad tracks in America. The replica will occupy a place in the Hall of Transportation. The original was built by John Stevens who operated it on a circular track on his estate at Hoboken, N. J., in 1825.

In 1811, Stevens applied to the New Jersey legislature for a charter to construct a railroad on which to run locomotives propelled by steam, but objections met each argument he put forth. Stevens was authorized, in 1815, to build a railroad between Trenton and New Brunswick, but he failed to raise the necessary money. Largely as the result of his efforts, the Pennsylvania legislature was induced in 1823 to pass a bill authorizing the newly-organized Pennsylvania Railroad Company to build a railroad from Philadelphia to Columbia, but the company could not finance the proposed railway. Following this disappointment, Stevens returned to his estate at Hoboken and built, in 1825, America's first steam locomotive.

The Texas and Pacific Seizes an Opportunity

For several days now, this department has been suffering from a sense of increased responsibility. This time it is a piece of direct mail advertising, whch has given us an inflated idea ot our own importance. Several weeks ago, it may be recalled, there was published on this page an item entitled "How to Get Passengers Back on the Trains." It was taken from the Baltimore Evening Sun, where it first found its way into print, and it contained the humorous suggestion that the railroads might recover some of their lost passenger business if they were to duplicate in their train service the inconveniences and discomforts which travelers by automobile appear to enjoy. One of our constant readers, Frank Jensen, general passenger agent of the Texas & Pacific, saw the item and, never slow to take advantage of an opportunity where it offers a chance of doing good for his railway, he promptly gave orders to have a piece of advertising prepared. Then, like a good fellow, he sent us a copy of it.

"The *Railway Age* brought us the following:" begins the advertisement and under that headline is our item in full, the whole thing illustrated by cartoons of the sort which we would like to publish but cannot afford. Underneath is the Texas & Pacific passenger traffic department's selling talk, which goes like this: "But the Texas & Pacific railway has not been convinced. It is still determined to continue to give its passengers on-time schedules; to allow the engineers to be fully responsible for driving the trains; to arrange meeting points so carefully that passenger trains will not be hindered; to provide as heretofore comfortable, roomy coaches, and the highest standard of Pullman sleepers, as well as the most beautiful lounge cars in the world; to maintain the roadbed skidproof and sans roughness; to retain great swiftness with perfect safety; to afford unexcelled dining car and dining room meals at moderate prices. So, when you travel Texas & Pacific, you will know no discomforts, no delays, no dangers, no lack of luxuries."

We hope the advertisement will bring the Texas & Pacific a lot of business.

News Department begins on next left-hand page

NEWS

Ex Parte 103 Increase To Yield $60,000,000

$45,000,000 of this will be available for loans, R. C. C. annual report says

The increase in freight rates allowed by the Interstate Commerce Commission in Ex Parte 103 is expected to yield approximately $60,000,000 to the railroads in 1932, of which $45,000,000 will be available for loans to carriers to meet their fixed interest charges, according to the first annual report of the Railroad Credit Corporation submitted at a stockholders' meeting in Washington on October 18.

This amount of $45,000,000, E. G. Buckland, president of the corporation, explained in the report, is approximately $55,000,000 below the requirements of the railroads. To make up the difference, he added, in funds available for interest and also requirements for such items as taxes, equipment trust obligations, maturities, and current operating expenses, recourse has been had by the railroads to the Reconstruction Finance Corporation.

The Railroad Credit Corporation was formed by the railroads to administer the "Marshalling and Distributing Plan" under which the proceeds from the increase in freight rates are being pooled and used for loans to needy carriers. The corporation, in making loans to rail carriers, is restricted to the prevention of default in fixed obligations.

"Of the increase in freight rates," said Mr. Buckland, "10 per cent, or $6,000,000, has been or will be set aside as a reserve to meet the obligation of the Railroad Credit Corporation to refund to contributing carriers money which they will be required to pay in federal, state, or local taxes because of the receipt of revenue from increased rates. Of the remaining $54,000,000, which will accrue to the railroads during the year, $45,000,000 will have been actually received by the Railroad Credit Corporation by the end of 1932, and, therefore, will be available for loans during the year. The remainder will not be received until 50 days after the end of the month in which earned.

In the first seven months of 1932, collection of rate increases under Ex Parte 103 totaled $35,764,606. Loans actually made in that period to railroads in order to meet their fixed interest obligations totaled $28,719,279, of which amount, $1,065,250 has been repaid. This leaves net loans outstanding amounting to $27,654,029 on October 1. On that date, loans authorized, but not actually made, amounted to $4,027,500, making a total of $32,746,779 in loans either actually made or authorized. Under the plan, the rate of interest was fixed at the current rediscount rate of the Federal Reserve Bank in the New York District. Until June 24, the rate was three per cent but since that time it has been 2½ per cent. The following shows by regions the amount of emergency revenues accruing to all participating carriers from increased rates for the period ended on July 1, 1932:

Class I Carriers (139)

Region	Emergency Revenue
New England Region	$1,635,317.37
Great Lakes Region	7,866,053.93
Central Eastern Region	9,223,122.94
Pocahontas Region	2,296,605.08
Southern Region	3,901,253.14
Northwestern Region	3,196,478.38
Central Western Region	4,680,735.26
Southwestern Region	2,295,177.91
Grand Total—U. S.	$35,094,744.01
Class II & III Carriers (290) All regions	669,862.19
Grand Total—All Roads (429)	$35,764,606.20

At the stockholders' meeting the members of the board of directors were re-elected.

Northwest Shippers' Board

The regular meeting of the Northwest Shippers' Advisory Board will be held at Grand Forks, N. D., on October 25, with E. J. Grimes, vice-president of the Cargill Elevator Company and Carl R. Gray, Jr., vice-president and general manager of the Chicago, St. Paul, Minneapolis & Omaha, as the principal speakers.

Faster Service Between St. Louis and Southwest

By reducing the running time one and one-half hours and changing the departure of fast trains, the Missouri Pacific, the Missouri-Kansas-Texas, the St. Louis-San Francisco and the Texas & Pacific have established 24-hr. passenger service between San Antonio, Tex., and St. Louis, Mo., and 17½-hr. service between Dallas, Tex., Ft. Worth and St. Louis, effective October 30.

I. C. C. Denies Long Pending Applications

The Interstate Commerce Commission, on Thursday, October 20, announced decisions denying the application of the New York, Pittsburgh & Chicago filed in 1925 for authority to build a new line across Pennsylvania, and denying the application of the Pittsburgh & West Virginia for authority to acquire control of the Wheeling & Lake Erie.

Unusual Powers Held by Regulatory Bodies

Decide more important matters than ordinarily come before courts, says Bikle

Federal and state commissions which regulate railroads and public utilities wield far greater discretionary powers than judges and decide matters of far greater public importance than ordinarily come before the courts, Henry Wolfe Bikle, general counsel of the Pennsylvania, declared in an address on October 19 at the opening session of the third annual meeting of the Association of Practitioners before the Interstate Commerce Commission which was held in Washington, D. C. Mr. Bikle is president of the Association.

In stressing the vital issues which are subject to the authority of commissions, Mr. Bikle declared that such power can only be safely entrusted to men of the highest ability and integrity. He pleaded that they should be unhampered by political influence or pressure in the exercise of it, which in the past, he said, has frequently not been the case.

The extreme breadth of the authority vested in commissions, Mr. Bikle pointed out, was due to the fact that congress and the state legislatures have usually specified the powers of commissions in terms that are "vague and indefinite." Conceding that this inevitably tends to set up "a government of men rather than a government of laws," he nevertheless expressed the opinion that such latitude is probably necessary.

Mr. Bikle said in part:

"Important as it is that a judge should be of unequestioned integrity, from the practical standpoint it is even more important that the commissioner should be.

"In the case of courts, long tradition, supported in large measure by a healthy public sentiment, requires that a judge shall be of exceptional ability and unquestioned integrity, and shall represent, not average morality, but something more than this. But, due, it may be, in part to the legal theory that the administrative tribunals are agencies of the legislature, public sentiment does not seem to have been as exacting in its demands as to the character of men to be appointed to commissions.

"Independence of these administrative tribunals is absolutely essential. Here again there is a tradition as to the judiciary which should find its counterpart in the case of the commissions. Their independence should be scrupu-

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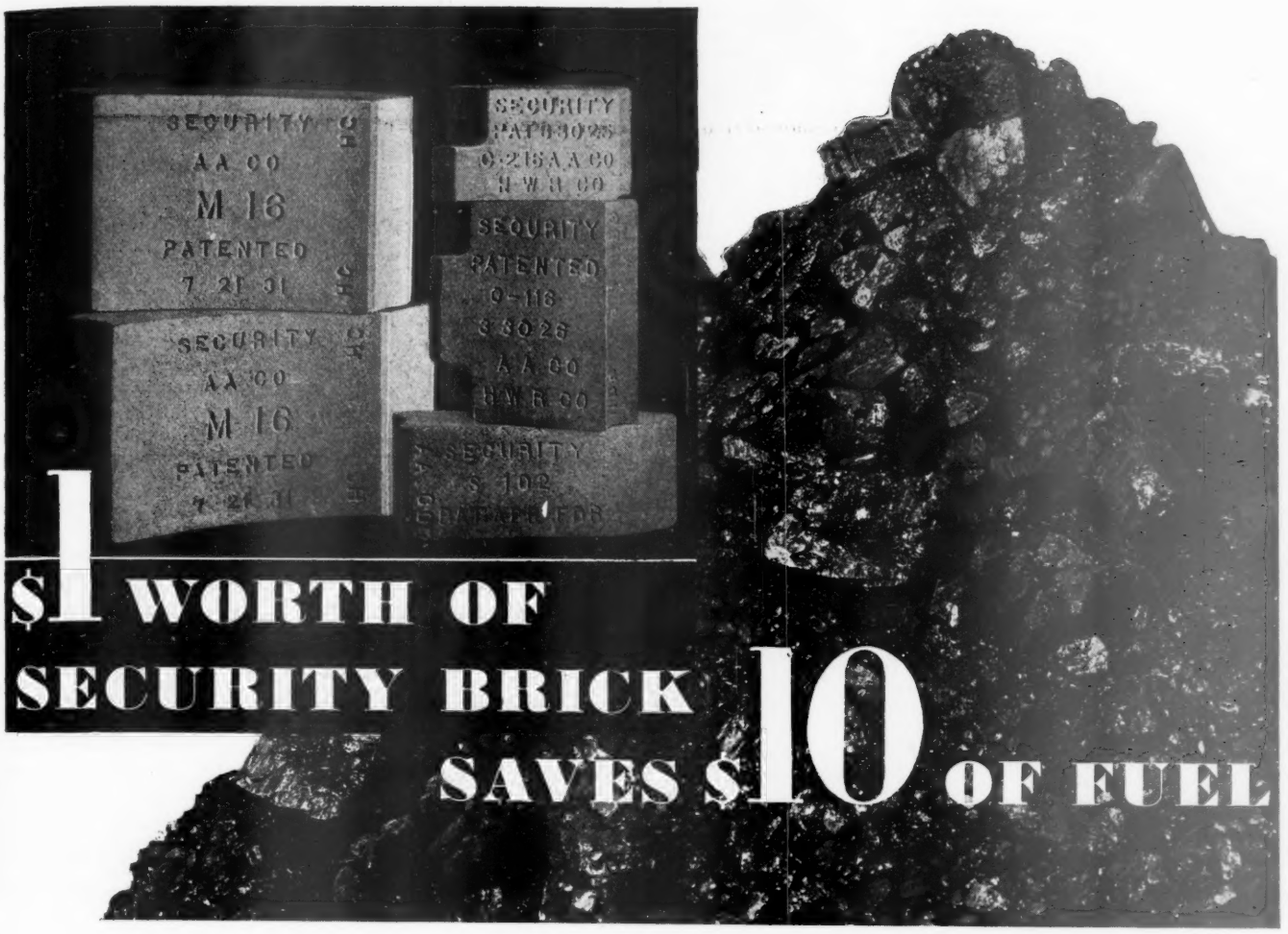

A RAILROAD recently conducted a series of road tests on a hand-fired Mikado engine in freight service to determine the effect of omitting the brick arch.

The superheat temperature dropped from an average of 620° to 590° while the coal consumption increased 16.7% on the basis of evaporation figures, and from 58.2 to 70.8 on the basis of lbs. of coal per 1000 adjusted ton miles.

In dollars and cents the result would be an increased consumption of approximately $80.00 worth of coal for the saving of $8.00 worth of arch brick in a month's time.

A checkup on your own power will convince you that regardless of the necessity for economizing on maintenance costs—

IT IS UNWISE TO SKIMP ON ARCH BRICK

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

HARBISON-WALKER REFRACTORIES CO.
Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion Specialists

lously respected and safeguarded. But there is reason to fear that there is some distance to go before this view will be generally accepted and acted on. There have been notable instances of attacks upon the independence of the Interstate Commerce Commission. There are even more numerous instances of such attacks upon state commissions.

"The contentions, which have been advanced in sundry quarters for a geographical distribution of the members of the Commission, are apparently based on the theory that these gentlemen should represent their constituents for the purpose of getting what they can, rather than that they should decide what of right and justice ought to be done in the cases before them.

"The law provides regular methods of meeting and dealing with official misconduct; but an attack upon the independence of these administrative agencies state or national, whether through the insidious channel of political or other influence, or through an effort at open or covert persuasion or intimidation by executive, legislative or community forces, tends to destroy the foundation upon which their successful operation must be built."

Terminal Services Hearings at Pittsburgh

Hearings in connection with the Interstate Commerce Commission's investigation of terminal services (Ex Parte 104, Part 2) opened at Pittsburgh, Pa., on October 21. The schedule calls for sessions in that city until November 10.

Low Fares to Mexico City

Railroads offering service from Chicago to Mexico City will on October 25 establish a round-trip passenger rate of $198. The tickets will have a six months, return limit and have an option of a boat trip from New Orleans, La., or Key West, Fla., to Havana, Cuba, and Vera Cruz, Mexico.

Railroad Abandonments Exceed Those of Last Year

Abandonment of 1,028 miles of railway line was authorized by the Interstate Commerce Commission in the first nine months of this year, as compared with 731 miles in the corresponding period of 1931 and 1,019 miles in the twelve months period ended October 31, 1931, covered by the commission's annual report.

Western Roads Ask Higher Rates on Livestock

Oral arguments were heard by the Interstate Commerce Commission on October 13 and 14 in the western livestock rate case, a part of the general freight rate structure investigation under the Hoch-Smith resolution, which had been re-opened for further hearing in the light of changed conditions between the close of the record in 1928 and the commission's decision ordering a readjustment of the rates in June, 1931. Representatives of the railroads argued that the rates prescribed by the commission are far below a reasonable level and asked to be allowed to increase rates on livestock to as high a point as the traffic will bear, saying that the rates would later be reduced if it were demonstrated that higher rates failed to increase revenues.

I.C.C. To Investigate New Jersey Intrastate Rates

The Interstate Commerce Commission, on petition of the railroads, has re-opened its Eastern class rate investigation proceeding for the purpose of investigating as to whether certain short-haul rates required by an order of the New Jersey state commission, lower than the interstate class rates prescribed by the federal commission, constitute an undue discrimination against interstate commerce.

Number of Railway Employees Less Than Million

For the first time in this century the number of employees of Class I railways has fallen below the million mark, according to the Interstate Commerce Commission's monthly statistics of railway employment. As of the middle of August the number in service was 996,319, a decrease of 22.65 per cent as compared with the number in August last year and a reduction of 25,618 between the middle of July and the middle of August. The number of employees has been above a million ever since 1899.

Supreme Court To Hear Argument on Regulation of Contract Carriers

The Supreme Court of the United States has announced that it will take jurisdiction of an appeal on behalf of several motor-truck operators to test the validity of the Texas law for the regulation of motor carriers. The operators sought to restrain enforcement of that part of the law which requires contract carriers to obtain permits and also provides for some regulation of their charges. The district court for the southern district of Texas denied the request for an injunction.

I. C. C. Modifies Definition of Passengers in Accident Reports

The Interstate Commerce Commission has ordered a modification of its rules governing monthly reports of railway accidents, to become effective January 1, so as to exclude from the definition of "passengers" persons who are lawfully on railway premises in connection with their journeys as passengers by railway but who are not on or getting on or off trains. Such persons hereafter will be classified as "travelers not on trains" and the former classification of "passengers" will be changed to "passengers on trains."

N. & W. To Have Exhibit at Century of Progress Exposition

The Norfolk & Western will be one of the exhibitors at the Century of Progress Exposition to be held in Chicago from June 1 to November 1, 1933. The nature of the exhibit which will be located in the General Exhibits building, adjoining the Hall of Science, has not yet been determined, but it is understood that emphasis will be placed on the coals mined on the Norfolk & Western. The exhibit will be in charge of Holcombe Parkes, manager of the railway's advertising department, George Dunglinson, manager of the fuel department and F. K. Prosser, manager of the coal department.

Wage Parley at Chicago

No definite action on proposed wage reductions was taken at a conference between railroad and labor representatives at Chicago on October 14 and 15. However, considerable progress was made in the settlement of differences between the two groups, and members of the brotherhoods will be asked to express themselves on the matter of wage reductions. On December 7, the executives of the brotherhoods will meet at Chicago to formulate recommendations to be made to the chairmen when the latter convene on the following day. On December 10, the railway and the labor representatives will again meet.

I. C. C. To Investigate Ohio Intrastate Coal Rates

The Interstate Commerce Commission on October 18 announced an order which it had entered on October 3, on petition of railways operating in Ohio, instituting a proceeding of investigation as to whether intrastate rates on coal in Ohio required by orders of the Public Utilities Commission in June and July, cause undue discrimination against interstate commerce. Following the reductions ordered by the state commission the Wheeling & Lake Erie reduced rates on coal to additional destinations in Ohio, including Akron, Cleveland, Huron and Lorain; and the Pittsburgh & West Virginia made reductions not only from mines in Ohio but in its rates from the Pittsburgh district. This caused protests from other coal-carrying roads which were the subject of a conference before the commission's suspension board on August 26, after which the commission suspended the P. & W. V. rates; but later withdrew its suspension order, also on October 3.

New Hampshire Railway Employees & Citizens Association

In spite of a heavy downpour of rain, which lasted throughout the day, an enthusiastic mass meeting of 700 railway employees and citizens of the state of New Hampshire was held in the Civic Auditorium of Concord, N. H., on October 18. The New Hampshire Railway Employees & Citizens Association was organized, starting off with a membership of 2,246. A. P. Dunbar, storekeeper of the Boston & Maine at Concord, presided, and addresses were made by Mayor Robert W. Brown of Concord, and Roy V. Wright, managing editor of the *Railway Age*. It was unanimously voted to form the association and a declaration of policies and by-laws were adopted. The association will seek to so adjust taxation and regula-

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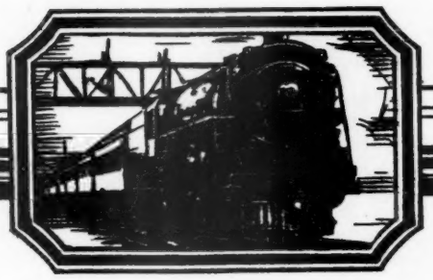

Alco Alco

Mr. R. H. Aishton, President of American Railway Association, in a recent review of Railway Progress, stated—"Greater improvements have been made in the development of steam locomotives within the past ten years than during any similar period in history . . . . As a matter of fact, there has been, especially since 1923, a steady improvement in the types of locomotives constructed."

Now this is the opinion of a big railway man, but let us see just how much it has meant to our railroads in general.

The following table gives by years the number of new locomotives ordered in the past eight years:

Years	Locomotives Ordered
1924	1413
1925	1055
1926	1301
1927	734
1928	603
1929	1212
1930	440
1931	235

A total of 6,993 locomotives ordered in the past eight years, or an average of 874 per year: and so far this year orders have been nil.

According to the latest figures available Class I railroads at the end of 1931 had 55,400 locomotives available for service.

In other words then, at least 48,407 locomotives on Class I roads today were ordered before the year 1924—we say "at least" because the 6,993 locomotives ordered included all roads and was not confined to Class I roads only. And to make the picture complete we know that the development in locomotive design in the last few years has been such that some of the engines built since 1924 are obsolete today.

Now let us see what the railroads' competitor has been doing. In 1923 there were registered in the United States 1,612,569 motor trucks. In 1931 this registration had jumped to 3,466,303. And in all probability practically the whole 3½ million trucks registered today were bought since 1923.

There is an old saying that the natural way to meet competition is to grow in ability to serve.

Well then, of these two competitors in the transportation field, which one, at least from the standpoint of economy of operation, has been striving the hardest to put themselves in a position to better serve?

American Locomotive Company
30 Church Street New York N.Y.

Alco Alco

tion of motor vehicles operated for profit over the public highways as to equalize competition with other transportation agencies and reduce the highway burden now carried by property taxation.

The twelve members who were elected to serve on the board of directors of the organization include six citizens and six railroad men, as follows: Hon. Rolland H. Spaulding, ex-governor of the state, Rochester, N. H.; R. B. Jacobs, ex-president of the Manufacturers Association of New Hampshire, Lebanon; Edwin A. Dunbar, merchant, Manchester; W. C. Cofflin, merchant, Keene; Herbert R. Hutchinson, merchant, Concord; George E. Harris, bank president, Nashua; Frank H. Keyser, conductor, Haverhill; A. F. Carter, agent, Rochester; J. H. Vincent, clerk, Concord; W. F. Bissonett, agent, Claremont; W. E. Estabrook, mechanic, Concord; and O. C. Benson, track repairer, Plymouth; the last six all being employees of the Boston & Maine.

Committee to Study Competition in Transportation

A committee of the Chamber of Commerce of the United States has been appointed to consider the problems of competing forms of transportation in accordance with a resolution adopted by the twentieth annual meeting directing the board of directors to make provision for impartial studies of intercoastal and other forms of competing transportation with a view to making recommendations to protect the public interest.

The chairman of the committee is David F. Edwards, president, Saco-Lowell Shops, Boston. The other members are J. C. Chase, fruit grower and distributor, Sanford, Fla.; L. W. Childress, president, Mississippi Valley Barge Line Company, St. Louis; W. L. Clayton, president, Anderson, Clayton & Co., Houston, Texas; Eric A. Johnston, president, Brown-Johnston Company, Spokane, Wash.; W. P. Kenney, president, Great Northern Railway, St. Paul; Franklin D. Mooney, president, Atlantic, Gulf & West Indies Steamship Lines, New York City; General Allison Owen, architect, New Orleans; J. J. Pelley, president, New York, New Haven & Hartford Railroad; J. Howard Pew, president, Sun Oil Company, Philadelphia; Colonel C. O. Sherrill, vice-president, Kroger Grocery & Baking Company, Cincinnati; and R. H. Sherwood, president, Central Indiana Coal Company, Indianapolis. A representative of the motor transport industry is also to be appointed.

This committee will take up current problems at the point where the special committee on railroads left off. The latter committee in its report, which will shortly be sent to referendum, proposes measures for restoration of railroad credit through changes in rate making policies, removal of unnecessary hampering restrictions upon railroad management and establishment of fair conditions of railway regulation. As to competing forms of transportation, the railroad committee's report is limited to recommending fairness of opportunity for all types of carriers on equal terms to render the service for which each is best suited. The first meeting of the committee will be held on October 31.

Noisy Places Demand Special Vigilance

The leading feature of the November circular of the Safety Section, A.R.A., is a poster entitled "On the Spot"; a large sheet in three colors showing a man risking his life in a large yard by crossing the track, where numerous locomotives are moving about, failing to see that a switcher is going to strike him. The conditions, and the danger and the shocking reflections, incident to a situation of this kind are compared in the committee's circular to the conditions shown in another picture, with the same title, where an innocent citizen is attacked on the street at night by a "gangster." The public is alarmed and shocked by reports of how innocent citizens (as well as others) are put "on the spot," and the committee appeals to railroad men to look at the facts so that they will realize that sometimes they, thoughtlessly, put themselves in peril, as deadly as that which threatens the citizen in the street. The circular is illustrated by a half-dozen pictures illustrating other examples of heedless or reckless behavior by railroad trainmen, yardmen, repairers and others in connection with their work.

Loans To Railroads

Up to September 30 the Interstate Commerce Commission had approved loans to railroads and receivers from the Reconstruction Finance Corporation aggregating $332,019,194 on applications amounting to $425,272,288. In September the commission approved loans amounting to $26,-101,737.

In the same period, the R.F.C. had authorized loans to 53 railroads amounting to $264,366,933.

In the nine months ending September 30, according to commission records, the railroads had borrowed $297,127,874 from banks and other private sources, in addition to the government loans, as compared with $285,617,465 in the corresponding period of last year. This includes $182,668,966 of loans for which commission authorization is not necessary but for which certificates of notification must be filed; and $58,771,688 of unsecured notes and $55,687,220 of secured notes authorized by the commission.

During the first nine months of this year the commission had approved issues of securities by railroads amounting to $983,589,888, as compared with $506,366,-821 in the corresponding period of last year. The total included $900,466,111 of mortgage bonds, a large part of which represented issues or nominal issues to be pledged as collateral for loans.

Employees' Activities in Defense of Railway Traffic

A local unit of the Railroad Employees and Taxpayers Association of Connecticut has been formed at Hartford, with the following officers: President, J. W. Coleman; secretary, T. J. Donahue; treasurer, R. F. Hogan; executive committee, Mr. Coleman, Mr. Donahue, Mr. Hogan, S. P. Koch, R. S. Danforth and N. S. Buckley; chairman of the membership committee, Peter Barnes; publicity, P. F. Sheriden; law enforcement, J. F. Carroll and legislative, William Donaghue.

On October 28 railroad employees and taxpayers of St. Louis, Mo., will hold a mass meeting at the Railroad Y. M. C. A., Twentieth and Eugenia streets, for the formation of an association in Missouri.

On the same date a mass meeting of the Norfolk-Portsmouth unit of the Virginia employee's association will be held at Norfolk for the purpose of discussing the advisability of dividing into two units, one for Norfolk and the other for Portsmouth, the thought being that the friendly rivalry thus engendered would stimulate membership and activity. Among the speakers will be several candidates for elective office.

A ladies' auxiliary to the Norfolk-Portsmouth unit, formed some weeks ago, has attracted wide interest.

The Milwaukee Organizes for Relief

A program for aiding distressed part-time and furloughed employees of the Chicago, Milwaukee, St. Paul & Pacific was formulated at Chicago on October 17, at a meeting of officers of the railroad and general chairmen of the various organizations of employees. Voluntary contributions will be sought from employees, while the work will be carried on by district relief committees composed of representatives of the labor organizations and local railroad officers. The purchasing power of the railroad will be used to facilitate purchases. The railroad will also assume the cost of transporting fuel to distributing centers.

Reductions in Iron and Steel Rates to Meet Competition Found Justified

Holding that the railroads should not be required to defer revision of their rates until they can show substantial losses of traffic to competing transportation agencies, Division 2 of the Interstate Commerce Commission, in a report made public October 18, has found justified a reduction proposed by the railroads in rates on iron and steel articles from Chicago and Peoria, Ill., Manitowoc and Milwaukee, Wis., St. Louis, Mo., and points taking the same rates, to St. Paul and Minneapolis and Duluth, Minn., and to intermediate points in Minnesota, Iowa, and Wisconsin, which had been suspended since April 9. The reductions proposed were under rates on the basis of 32.5 per cent of the first-class rates prescribed by the commission as maxima in connection with the revision of western trunk line class rates which became effective on December 3, 1931, and would apply a basis slightly higher than the commodity rates effective before that date.

In justification of the proposed rates the railroads contended that the present rates are too high to hold the traffic to their lines because lower truck rates are available, because of the possibility of shipments moving by water from Chicago to Duluth, and thence by rail to the Twin Cities, and because eastern producers can reach the same destination territory on a

Continued on next left-hand page

FIREBOXES NEED THE PROTECTION OF TONCAN IRON

Big fireboxes have brought new troubles to the boilermaker. The increased stress; higher pressures and larger stayed surfaces all conspire to shorten the life of firebox sheets. The old time steel sheet cracks, fails and must be renewed in a comparatively short time. « Toncan Iron, however, has an exceptional resistance to fire-cracking and on scores of Super-Power locomotives is outlasting steel sheets many times. « Moreover, its alloy composition of refined iron, copper and molybdenum resists the above conditions that weaken ordinary sheets.

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Staybolts, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Maney Guard Rail Assemblies • Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel (20-27 Carbon).

The Birdsboro Steel Foundry & Machine Company of Birdsboro, Penna., has manufactured and is prepared to supply under license, Toncan Copper Molybdenum Iron castings for locomotives.

REPUBLIC STEEL
CORPORATION
GENERAL OFFICES YOUNGSTOWN, OHIO

TONCAN
COPPER
Molybdenum
IRON

very much lower basis of rates. Also, barge rates are available from St. Louis to the Twin Cities. It is stated that the proposed reductions were decided upon without giving consideration to existing rate relationships as between competing localities.

The report, by Commissioner Tate, says that "clearly, the establishment of the rates here under suspension will give a rate preference to Chicago, St. Louis, and intermediate points, in reaching the Twin Cities and Duluth. Whether that preference is unlawful, within the meaning of Section 3, is another question. The proposed rates are compensatory. It does not appear that they would cast an undue burden upon other traffic. In any such undertaking existing rate relationships will be disturbed to some extent but such incidental disturbances or changes do not establish unlawful preference or prejudice. Here respondents are endeavoring to meet a situation through rate reductions which in their opinion justifies such action. Although they are unable definitely to inform us as to possible losses of traffic, the matter of initiating rates is one which rests primarily with the managers of the railroads and they should not be required

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 167 steam railways, including 17 switching and terminal companies

FOR THE MONTH OF AUGUST, 1932 AND 1931

Item	United States		Eastern District		Southern District		Western District	
	1932	1931	1932	1931	1932	1931	1932	1931
Average number of miles operated	242,289.17	242,428.57	60,164.61	60,275.42	46,135.61	46,170.63	135,988.95	135,982.52
Revenues:								
Freight	a $194,986,752	$279,996,012	$79,431,363	$114,879,886	$36,104,459	$51,612,669	$79,450,930	$113,503,457
Passenger	31,385,452	49,170,441	18,799,078	28,898,690	3,119,040	5,000,109	9,467,334	15,271,642
Mail	7,633,494	8,393,763	3,032,900	3,275,862	1,257,718	1,401,374	3,342,876	3,716,527
Express	3,616,645	5,593,313	1,760,069	2,694,981	362,713	749,370	1,493,863	2,148,962
All other transportation	b 8,831,748	12,372,365	5,150,088	7,092,454	587,674	848,023	3,093,986	4,431,888
Incidental	5,173,755	8,207,465	2,849,562	4,192,344	618,667	970,054	1,705,526	3,045,067
Joint facility—Cr.	712,967	936,079	244,361	299,068	133,707	176,074	334,899	460,937
Joint facility—Dr.	238,642	276,909	62,133	65,746	18,703	25,876	157,806	185,287
Railway operating revenues	252,102,171	364,392,529	111,205,288	161,267,539	42,165,275	60,731,797	98,731,608	142,393,193
Expenses:								
Maintenance of way and structures	29,324,160	47,099,377	11,263,356	20,531,349	5,243,237	8,505,278	12,817,567	18,062,750
Maintenance of equipment	47,492,865	66,087,193	20,620,821	30,750,300	8,578,080	11,980,334	18,293,964	23,356,559
Traffic	7,598,580	9,677,747	2,839,182	3,807,982	1,441,692	1,770,350	3,317,706	4,099,415
Transportation	90,851,690	128,877,903	42,135,537	61,147,124	14,406,419	20,661,053	34,309,734	47,069,726
Miscellaneous operations	2,215,973	3,548,573	1,053,903	1,695,615	216,811	336,048	945,259	1,516,910
General	12,467,721	14,850,420	5,376,403	6,475,521	2,098,610	2,621,535	4,992,708	5,753,364
Transportation for investment—Cr.	320,115	779,180	107,132	185,761	35,581	90,958	177,402	502,461
Railway operating expenses	189,630,874	269,362,033	83,182,070	124,222,130	31,949,268	45,783,640	74,499,536	99,356,263
Net revenue from railway operations	62,471,297	95,030,496	28,023,218	37,045,409	10,216,007	14,948,157	24,232,072	43,036,930
Railway tax accruals	24,340,751	27,560,631	10,945,265	11,661,638	4,032,670	4,521,791	9,362,816	11,377,202
Uncollectible ry. revenues	76,549	64,004	40,214	18,116	9,285	18,426	27,050	27,462
Railway operating income	38,053,997	67,405,861	17,037,739	25,365,655	6,174,052	10,407,940	14,842,206	31,632,266
Equipment rents—Dr. balance	6,762,805	8,329 088	3,605,620	4,323,617	42,438	d 28,801	3,114,747	4,034,272
Joint facility rent—Dr. balance	2,922,805	2,632,618	1,681,447	1,503,381	334,028	302,589	907,330	826,648
Net railway operating income	28,368,387	56,444,155	11,750,672	19,538,657	5,797,586	10,134,152	10,820,129	26,771,346
Ratio of expenses to revenues (per cent)	75.22	73.92	74.80	77.03	75.77	75.39	75.46	69.78

FOR EIGHT MONTHS ENDED WITH AUGUST, 1932 AND 1931

Average number of miles operated	242,162.08	242,333.42	60,164.05	60,271.57	46,171.82	46,130.13	135,826.21	135,931.72
Revenues:								
Freight	e $1,601,947,040	$2,244,199,622	$694,280,814	$949,293,784	$306,831,445	$428,322,824	$600,834,781	$866,583,014
Passenger	265,373,324	391,572,894	157,352,874	222,790,833	30,682,997	48,897,116	77,337,453	119,884,945
Mail	64,436,161	69,452,970	25,437,137	26,779,305	10,919,679	11,741,052	28,079,345	30,932,613
Express	36,146,195	57,620,126	16,333,419	24,887,993	6,283,854	9,567,375	13,528,922	23,164,758
All other transportation	e 74,293,470	98,100,319	43,824,077	56,903,975	5,140,990	7,328,988	25,328,403	33,867,356
Incidental	45,015,251	62,516,476	25,593,923	33,158,709	5,754,381	8,769,885	13,666,947	20,587,882
Joint facility—Cr.	6,169,879	7,768,667	2,073,996	2,486,362	1,156,197	1,408,069	2,939,686	3,874,236
Joint facility—Dr.	2,024,596	2,270,860	550,255	602,996	152,057	202,653	1,322,284	1,465,211
Railway operating revenues	2,091,356,724	2,928,960,214	964,345,985	1,315,697,965	366,617,486	515,832,656	760,393,253	1,097,429,593
Expenses:								
Maintenance of way and structures	249,678,706	384,994,401	101,175,793	162,263,817	47,966,664	72,275,113	100,536,249	150,455,471
Maintenance of equipment	424,120,397	576,811,507	192,764,274	267,713,082	76,926,829	103,886,968	154,429,294	205,211,457
Traffic	66,969,112	80,428,373	25,814,964	31,154,664	12,399,241	14,867,103	28,754,907	34,406,606
Transportation	796,756,114	1,075,273,619	376,216,107	507,630,892	128,371,545	177,010,023	292,168,462	390,632,704
Miscellaneous operations	19,697,026	29,056,864	9,795,754	14,099,521	2,264,713	3,421,179	7,636,559	11,536,164
General	107,660,732	124,559,895	47,221 893	54,236,919	18,292,006	21,703,146	42,146,833	48,619,830
Transportation for investment—Cr.	2,892,513	4,959,985	1,020,681	907,391	217,618	598,915	1,654,214	3,453,679
Railway operating expenses	1,661,989,574	2,266,164,674	751,968,104	1,036,191,504	286,003,380	392,564,617	624,018,090	837,408,553
Net revenue from railway operations	429,367,150	662,795,540	212,377,881	279,506,461	80,614,106	123,268,039	136,375,163	260,021,040
Railway tax accruals	197,967,469	219,327,550	83,054,623	88,198,457	36,090,775	41,496,538	78,822,071	89,632,555
Uncollectible ry. revenues	624,588	530,132	252,583	191,931	90,640	119,450	281,365	218,751
Railway operating income	230,775,093	442,937,858	129,070,675	191,116,073	44,432,691	81,652,051	57,271,727	170,169,734
Equipment rents—Dr. balance	57,356,278	68,201,039	28,805,338	33,491,077	3,511,359	4,591,405	25,039,581	30,118,557
Joint facility rent—Dr. balance	21,124,199	20,827,929	11,455,868	11,508,117	2,371,914	2,212,414	7,296,417	7,107,398
Net railway operating income	152,294,616	353,908,890	88,809,469	146,116,879	38,549,418	74,848,232	24,935,729	132,943,779
Ratio of expenses to revenues (per cent)	79.47	77.37	77.98	78.76	78.01	76.10	82.07	76.31

a Includes $5,134,132 increase from "Ex Parte 103." b Includes $80,477 increase from "Ex Parte 103." c Includes $41,330,782 increase from "Ex Parte 103." d Deficit or other reverse items. e Includes $712,277 increase from "Ex Parte 103."

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

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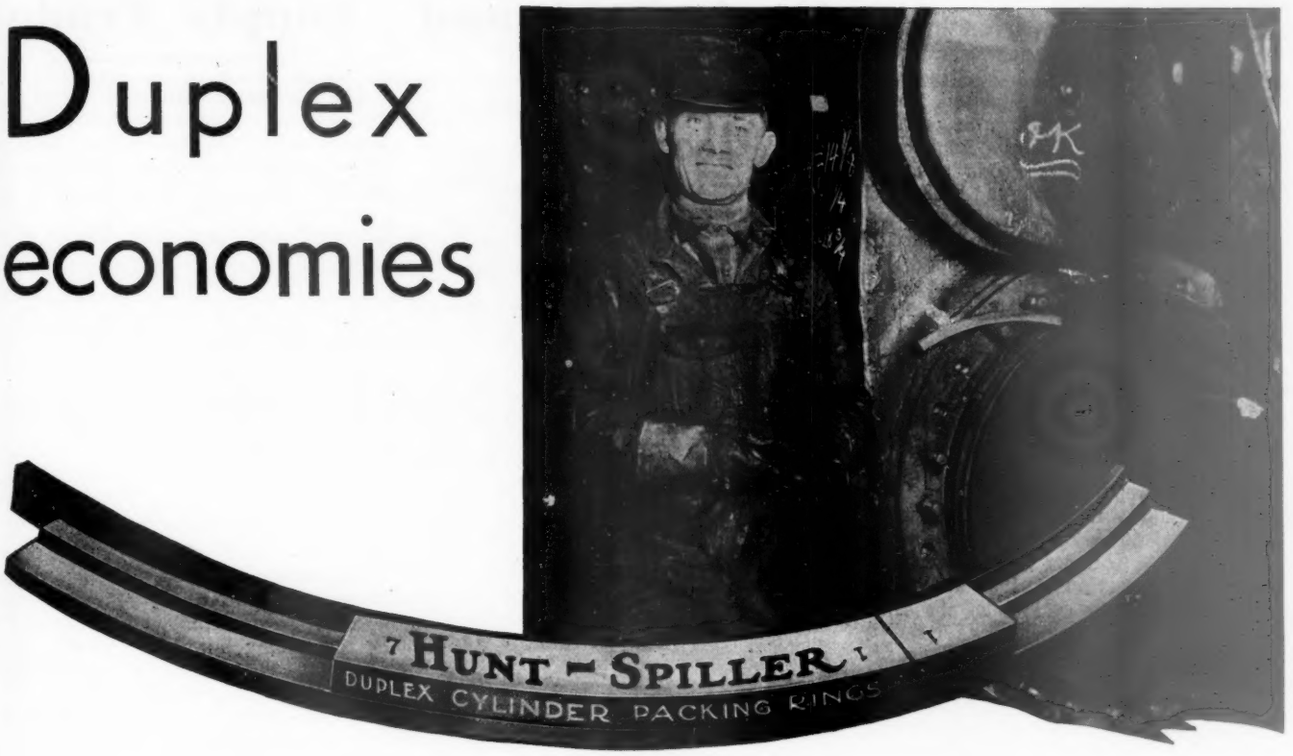
Duplex economies



THE use of HUNT-SPILLER *Duplex Sectional* Packing assures big savings from two different sources.

Locomotive Maintenance: Performance reports prove conclusively that *Duplex Packing* will give maximum wear. The increased mileage between renewals not only reduces material costs but also saves many hours of expensive labor in the engine terminals.

Fuel Consumption: Less fuel per ton mile will be required when your locomotives are equipped with *Duplex Sectional Packing.* The combination of HUNT-SPILLER *Air Furnace* GUN IRON and the *Duplex* design insures steam tight operation. Every ounce of steam admitted to the cylinders does its share of work before it passes through the exhaust ports.

HSGI
Reg. U. S. Trade Mark
Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings
Parts Finished for Application
Dunbar Sectional Type Packing
Duplex Sectional Type Packing
(Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

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Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HUNT-SPILLER GUN IRON

Air Furnace

to defer revision of their rates until they can show substantial losses of traffic to competing transportation agencies."

Early last year, Division 2 of the commission, Commissioners Aitchison, Porter and Tate, refused to allow the Atlantic Coast Line and the Norfolk Southern to reduce rates on tobacco from points in North Carolina to Norfolk and Richmond, Va., to meet the competition of trucks and boats which had obtained a large part of the traffic to Norfolk, on the ground that the proposed rate would result in an undue and unwarranted disadvantage to Newport News and that no truck competition to Richmond had been shown.

Freight Traffic in August

Freight traffic handled by Class I railroads in the first eight months of 1932 amounted to 167,044,101,000 net ton-miles, according to reports compiled by the Bureau of Railway Economics. This was a reduction of 66,936,788,000 net ton-miles, or 28.6 per cent, under the traffic of the corresponding period in 1931 and a reduction of 41.4 per cent under the same period in 1930. As compared with 1929 it was a reduction of 48 per cent. Railroads in the Eastern district for the eight months reported a reduction of 26.5 per cent compared with the same period in 1931, while the Southern district reported a reduction of 30.8 per cent. The Western district reported a decrease of 30.7 per cent.

The volume of freight handled in August amounted to 20,046,166,000 net ton-miles, a reduction of 9,315,231,000 net ton-miles, or 31.7 per cent, under the same month in 1931 and 46.4 per cent under August, 1930. In the Eastern district, the freight traffic in August was a reduction of 31.3 per cent compared with the same month in 1931, while the Southern district reported a decrease of 31.1 per cent. The Western district reported a decrease of 32.5 per cent.

New Delay for New York Store-Door Collection and Delivery Plan

The effective date of the joint agency tariff covering collection and delivery services in New York has been postponed from October 17 to November 17, according to an announcement issued on October 14. The announcement follows:

"Under special authority granted by the Interstate Commerce Commission and the Public Service Commission, State of New York, the rail lines serving New York and the metropolitan district in New Jersey have arranged for postponement until November 17, 1932 of the effective date of Curlett's Tariff I.C.C. A-385, which published rates, rules and regulations governing collection and delivery service (commonly known as store-door delivery service) of freight in carloads and less carloads, which tariff would otherwise have become effective October 17, 1932.

"This action is due to exceptions taken by the Interstate Commerce Commission's Section of Tariffs as to certain features of the tariff as filed which were considered not to be sufficiently definite, and it is expected that certain changes will be made to satisfy the Commission's views in that respect."

Equipment and Supplies

LOCOMOTIVES

THE MIDLAND TERMINAL contemplates buying two locomotives of the 2-8-2 type.

FREIGHT CARS

THE UNITED STATES NAVY DEPARTMENT is inquiring for two or three steel box cars of 50 tons' capacity.

THE WESTERN FRUIT EXPRESS has ordered 100 underframes from the Minneapolis Steel & Machinery Company. Inquiry for this equipment was reported in the *Railway Age* of September 3.

THE PENNSYLVANIA has given an order to the Youngstown Steel Door Company for 1,800 steel freight car doors. These are to be used on 925 steel box cars which the company is building in its own shops as reported in the *Railway Age* of October 15.

IRON & STEEL

THE SOUTHERN PACIFIC has ordered 300 tons of structural steel for a bridge at Houston, Tex., from the Petroleum Iron Works.

THE NORFOLK & WESTERN has placed orders for 5,000 tons of steel rail, of this 4,000 tons were let to the Carnegie Steel Company and 1,000 tons to the Bethlehem Steel Company.

THE VIRGINIAN & WESTERN has given a contract to the Virginia Bridge & Iron Company for furnishing steel superstructures involving about 978 tons, for five bridges on this road's Guyandotte river line near Gilbert, Mingo County, W. Va.

ERIE.—Contracts have been let by Senior & Palmer, Inc., New York, who have the contract to build a bridge for the Erie at Ramsey, N. J., for 175 tons of structural steel to the McClintic-Marshall Corporation and for 50 tons of reinforced bars to the Kalman Steel Corporation.

SIGNALING

CHICAGO, ROCK ISLAND & PACIFIC.—The Interstate Commerce Commission has reopened its automatic train-control investigation for further hearing on this company's application to be relieved of the requirement for the maintenance of automatic train control.

MISCELLANEOUS

THE ILLINOIS CENTRAL has recalled to work 4,240 men since September 1. Of these 565 are employed in train and engine service.

Rock Island Recalls 300 Workers

The Chicago, Rock Island & Pacific, on October 11, recalled 300 employees of the locomotive department at Shawnee, Okla., for work on a five-day basis for at least two weeks.

Supply Trade

The Pettibone-Mulliken Company, Chicago, was placed in receivership by Federal judge Wilkerson, on October 12, following a foreclosure in equity. **C. H. Eib,** president, was appointed receiver.

J. E. McFate, formerly a representative of the Jones & Laughlin Steel Corporation, has been appointed a sales representative of the **Republic Steel Corporation,** Youngstown, Ohio, with headquarters at Boston, Mass.

The Caterpillar Tractor Company, Peoria, Ill., has made arrangements with the **Brookville Locomotive Company,** Brookville, Pa., whereby Caterpillar engines will be used to furnish motive power for 6 to 12-ton locomotives manufactured by the latter company.

The Louisville Frog, Switch & Signal Company, Louisville, Ky., has changed its name to the **Louisville Switch & Signal Company,** following the sale of its frog and switch business to the **Morden Frog & Crossing Works,** Chicago. The Louisville Switch & Signal Company will continue to manufacture signal materials, gage rods, bolts, bumping posts and other specialties but will not, in the future, make frogs, switches, crossings or other track work. While the sale includes the machinery for building the track work, it includes no buildings or real estate. The personnel of the Louisville Switch & Signal Company remains the same as that of its predecessor.

The Cooling & Air Conditioning Corporation, founded by and until recently, partly owned by the **B. F. Sturtevant Company,** Hyde Park, Boston, Mass., is now a completely owned Sturtevant subsidiary, to be incorporated under the laws of Massachusetts. The name of the corporation will be changed to **Sturtevant-Cooling & Air Conditioning Company,** with headquarters at Hyde Park. The officers include **E. B. Freeman,** president, **B. S. Foss,** treasurer, and **H. R. Sewell,** vice-president and general manager, who has been with the Sturtevant Company for 17 years, the past seven as manager of the air conditioning division. The B. F. Sturtevant Company will handle, through the regular trade channels, the manufacturing and sale of the unit type of air-conditioning product, such as coolers, humidifiers, or combinations of both.

OBITUARY

Samuel Lewis Smith, vice-president of the National Malleable & Steel Castings Company, who died suddenly at his home in Cleveland, Ohio, on October 6, was born in Cleveland, on August 22, 1867. Following his graduation from Phillips Academy at Andover, Mass., he entered Yale University and was graduated in 1889, after which he became connected with the Eberhard Manufacturing Company, Cleveland. In 1891 he became associated with the National Malleable & Steel Castings Company, in which organi-

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zation he progressed steadily until he was made a director in 1908, and vice-president in charge of sales in 1911. At the time

Samuel Lewis Smith

of his death he was a director of the National Industrial Conference Board and an executive member of the Railway Business Association.

John W. Fristoe, chairman of the board of the T. J. Moss Tie Company, St. Louis, Mo., died in that city on October 15 from pneumonia after an illness of five days. He was born in Salisbury, Mo., on November 13, 1858, and became associated with the T. J. Moss Tie Company at the time of its organization at Higbee, Mo., in 1879. Later he became manager for T. J. Moss at Puxico, Mo., which position he held until 1893, when the T. J. Moss Tie Company was incorporated following the death of T. J. Moss, and Mr. Fristoe

John W. Fristoe

was elected vice-president. In 1902 he was elected president, which position he held until 1928 when he retired and became chairman of the board of directors, a position he was holding at the time of his death. Mr. Fristoe also served as a receiver for the Cape Girardeau Northern from 1914 to 1922. He was active in the organization of the National Association of Railroad Tie Producers, of which he was the first president.

Construction

CHESAPEAKE & OHIO.—This road has awarded to A. H. Calligan & Company, Richmond, Va., a contract amounting to $42,800 for the replacement of the west abutment and extension of bridge No. 4323, at Pratt, W. Va.

PUBLIC SERVICE COMMISSION OF NEW YORK.—The New York Public Service Commission has approved general and detailed plans and cost estimates for elimination of grade crossings of the Pennsylvania and the New York, Chicago & St. Louis with the Angola-Brant-Farnham county highway just south of Angola, N. Y., and has affirmed its order for the elimination of the Fairmount Avenue crossing of the Erie in Jamestown, N. Y.

The commission announced on October 15 that it will hold a hearing at 1:30 p.m. on October 25 in its offices at Albany, N. Y., on a list of grade crossings, the elimination of which has been suggested for consideration during the calendar year 1933. The list of crossings proposed for places on the list to be considered for elimination next year is the smallest in recent years, because only the most dangerous crossings not yet eliminated have been included. The various projects were suggested by the New York State Department of Public Works, by municipalities and by the commission itself, while the total cost of eliminating all crossings on the list is estimated at $2,000,000, which is available for the work. From evidence received at the hearing to be held on October 25, the commission will compile a list of railroad grade crossings to be considered for elimination during 1933. The list, as it now stands, and from which such elimination projects will be picked, includes one or more crossings on the Delaware & Hudson in Colonie, N. Y., Colesville and Plattsburg; on the New York Central in Copake, Batavia, Gates, Riga, Hilton, Verona and DeKalb; on the Delaware, Lackawanna & Western in Virgil, Pavilion and Avoca; on the New York, Ontario & Western in Walton; on the Lehigh Valley in Batavia, Rush and Ithaca; on the Erie in Nunda, Henrietta and Owego; on the Long Island in Brookhaven; and on the Baltimore & Ohio (Buffalo, Rochester & Pittsburgh) in Buffalo.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—The city of St. Louis, Mo., plans to apply to the Reconstruction Finance Corporation for a loan of $1,600,000 for the construction of the western railroad approach to the Municipal bridge across the Mississippi river as soon as certain legal and technical details have been settled. This approach will connect the Municipal bridge with the yards of the Terminal Railroad Association near Twelfth and Poplar streets and will cross over the tracks of the St. Louis-San Francisco, the Missouri Pacific and the Terminal Association. The cost of the approach will be paid by tolls collected from the Terminal Railroad Association for the use of the railroad deck of the Municipal bridge.

Financial

ALABAMA & WESTERN FLORIDA.—*R.F.C. Loan Denied.*—Upon reconsideration the Interstate Commerce Commission has denied its approval of this company's amended application for a loan of $73,175 from the Reconstruction Finance Corporation.

ALABAMA CENTRAL.—*R.F.C. Loan Denied.*—The Interstate Commerce Commission has denied approval of this company's application for a loan of $25,000 from the Reconstruction Finance Corporation.

ARLINGTON & FAIRFAX.—*R.F.C. Loan Denied.*—The Interstate Commerce Commission has denied approval of this company's application for a loan of $11,300 from the Reconstruction Finance Corporation.

BALTIMORE & OHIO.—*R.F.C. Work Loan Approved.*—The Interstate Commerce Commission on October 13 approved this company's application to the Reconstruction Finance Corporation for a "work loan" of $3,000,000 at 5 per cent for the purpose of increasing employment and stimulating business by expenditures of approximately $900,000 for the repair and rebuilding of 165 locomotives, $1,100,000 for repair of 2,500 freight cars, and $1,460,000 for building 820 new all-steel gondola cars. It is estimated that about 1,500 men will be employed 30 hours a week for a six-months period and that the material and appliances to be purchased will represent a like amount of labor in outside shops. As security for the loan the commission required that the company agree that all stocks and bonds pledged or to be pledged with the R. F. C. as collateral for the loans of $32,500,000 previously made and of $31,625,000 approved by the commission, as and when made by the corporation, shall apply equally and ratably.

The loan has also been authorized by the Reconstruction Finance Corporation.

CAPE FEAR RAILWAYS, INC.—*R.F.C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $30,000 to pay notes and interest and for repairs to its track.

CHICAGO & NORTH WESTERN.—*R.F.C. Loan.*—This company has filed with the Reconstruction Finance Corporation a supplemental application for a loan of $1,000,000 for the purchase and treatment of ties, asking that advances on the loan be made in amount of $100,000 or multiples thereof only after the company has expended such sums in the purchase or treatment of ties. The company tenders as security for the loan the ties to be purchased and agrees to mark them in such manner as will designate them the property of the R. F. C., during the process of seasoning and treatment. It also proposes to put them in its treating yards at Escanaba, Mich., and to remove them only in parcels as the company shall have need of them after having paid in advance for the parcels so removed.

DAYTON-GOOSE CREEK.—*Final Valuation.*—The Interstate Commerce Commission

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has issued a final valuation report as of 1920 finding the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $684,000. Hearing was also held this week before Examiner Brinkley on the protest against the commission's tentative recapture report for the period 1920 to 1926. Over ten years ago the company had sought to enjoin the commission from recapturing alleged excess income and elicited a decision of the Supreme Court sustaining constitutionality of the recapture clause. At that time the commission had not issued any order against the company but merely a general circular directing carriers to report their excess income. The property has since been acquired by the Southern Pacific which purchased the stock for $900,000.

GEORGIA & FLORIDA.—*Receivers' Certificates.*—The Interstate Commerce Commission has authorized this company to issue $600,000 of series B receivers' certificates in exchange for a like amount of series A.

GULF, COLORADO & SANTA FE.—*Abandonment.*—This company and the Texas & Gulf have applied to the Interstate Commerce Commission for authority to abandon the line from Gary, Tex., to Grigsby, 27.16 miles.

KANE & ELK.—*R.F.C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $30,000 to liquidate certain obligations.

MAINE CENTRAL.—*R.F.C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $900,000 to be used in refunding an issue of 40-year 4 per cent bonds of the Maine Central and the European & North American, whose property is leased by the Maine Central, maturing January 1, 1933. The company has also applied for authority to issue $1,000,000 of 5 per cent first mortgage bonds to be pledged as collateral for the loan.

MARIANNA & BLOUNTSTOWN.—*Acquisition.*—The Interstate Commerce Commission has authorized this company to acquire and operate the railroad formerly owned by the Alabama, Florida & Gulf, and to construct a 9-mile extension from Greenwood, Fla., to Marianna, and another, of 5 miles, from Wilson to Dothan, Ala.

OREGON-WASHINGTON RAILROAD & NAVIGATION.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon its 8.7-mile Beaver branch in Shoshone county, Idaho.

RAPID CITY, BLACK HILLS & WESTERN.—*R.F.C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $40,000 to avert receivership by enabling it to pay interest and taxes to May 1, 1933.

ROWLESBURG & SOUTHERN.—*R.F.C. Loan Denied.*—The Interstate Commerce Commission has denied approval of this company's application for a loan of $150,000 from the Reconstruction Finance Corporation to discharge indebtedness to the Keystone Manufacturing Company.

SIERRA.—*R.F.C. Loan Denied.*—The Interstate Commerce Commission has denied approval of this company's application for a loan of $230,000 from the Reconstruction Finance Corporation.

Tentative Valuation Reports

The Interstate Commerce Commission has issued tentative valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as of the respective valuation dates, as follows:

Middleburgh & Schoharie	$100,000	1927
Kentucky, Rockcastle & Cumberland	123,000	1927
St. Louis & Ohio River	745,000	1927
Maryland & Delaware Coast	635,000	1927
Kanawha Central	76,000	1927
Carbon County	310,000	1927

Average Prices of Stocks and of Bonds

	Oct. 18	Last week	Last year
Average price of 20 representative railway stocks..	24.45	22.38	51.54
Average price of 20 representative railway bonds..	61.05	60.24	77.13

Dividends Declared

Elmira & Williamsport.—$1.15, semi-annually, payable November 1 to holders of record October 20.

Kansas City, St. Louis & Chicago.—Preferred, $1.50, quarterly, payable November 1 to holders of record October 20.

Utica, Chen & Susqu Valley.—$3.00, semi-annually, payable November 1 to holders of record October 14.

Virginian.—Preferred, $1.50, quarterly, payable November 1 to holders of record October 15.

Wheeling & Lake Erie.—Prior Lien, $5.25, payable October 19 to holders of record October 17 (on account of accumulated dividends).

Railway Officers

EXECUTIVE

John B. Hyde, general solicitor of the Southern, has been elected vice-president, succeeding **F. S. Wynn,** retired.

H. B. Titcomb, president of the Southern Pacific of Mexico, with headquarters at Guadalajara, Jalisco, Mex., has resigned effective November 1.

FINANCIAL, LEGAL AND ACCOUNTING

H. D. Schaefer, who has been connected with the office of the paymaster of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., for the last 30 years, has been promoted to paymaster to succeed **F. W. Young,** deceased.

OPERATING

C. O. McHugh, assistant superintendent of the Canadian Pacific, with headquarters at Smith's Falls, Ont., has been appointed transportation assistant, succeeding **C. G. Nuttall. J. O. Fortier,** assistant superintendent, with headquarters at Sherbrooke, Que., has been appointed assistant superintendent of the Montreal Terminals division.

F. T. Buechler, assistant superintendent of the Iowa & Dakota division of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Sioux City, Iowa, has been promoted to superintendent of the Superior division, with headquarters at Green Bay, Wis., succeeding **E. A. Meyer,** who has been appointed manager of the safety and fuel departments at Chicago, as noted in the *Railway Age* of October 8. **F. R. Doud,** trainmaster, with headquarters at Sioux Falls, S. D., has been appointed assistant superintendent of the Iowa & Dakota division at Sioux City, to replace Mr. Buechler.

TRAFFIC

E. C. Bywater, traffic agent for the Chicago Great Western, with headquarters at Cincinnati, Ohio, has been promoted to general agent at the same place, succeeding **C. A. Howe,** who has been appointed to the newly-created position of assistant general agent, with headquarters at Los Angeles, Cal.

ENGINEERING AND SIGNALING

Arthur Ridgway, chief engineer of the Denver & Rio Grande Western, with headquarters at Denver, Colo., has been appointed also chief engineer of the Denver & Salt Lake Western, the line which was incorporated in 1924 by the Denver & Salt Lake (Moffat line) for the construction of the Dotsero cutoff and control of which has recently been acquired by the D. & R. G. W.

SPECIAL

L. R. Stewart has been appointed assistant superintendent labor and wage bureau, Eastern region, of the Pennsylvania.

C. F. Goldthwaite, assistant director of publicity (advertising services) of the Canadian National, with headquarters at Montreal, Que., has resigned to enter the advertising agency field. **Arthur B. Smith,** who has been with the C. N. R. publicity department for a period of 15 years, and has held the positions of chief clerk, assistant to the advertising manager and supervisor of publications, will handle advertising services under the direction of **W. S. Thompson,** director of publicity.

OBITUARY

Edward Robbins, former counsel for the New Haven, died at New Haven, Conn., on October 7, after a long illness.

William N. Price, general agent for the Wabash at San Francisco, Cal., died on October 13, at the Peralta hospital at San Francisco, following an illness of several months.

A. P. Bowen, who was director of purchases of the Pullman Company, from 1911 to 1918, and treasurer from the latter year until he left this company in 1919, died on October 14 at St. Luke's hospital at Chicago.